

Motorola hopes to take major DP share

by Dave Madden

MOTOROLA will take a major share of the UK data processing market in 1984. That is the confident prediction of Noel Voice, UK marketing manager of Motorola Information Systems (MIS), the group formed by Motorola last autumn out of its Codex data communications business and the office automation line acquired with Four-Phase Systems.

Voice says that the key to success and survival in information technology in the rest of the decade will be the convergence of data communications and processing. Voice insists that though Motorola still has to educate the market that it is not only a mobile radio or semiconductor company, it is peculiarly well placed to take advantage of the changes in the market.

"The industry is becoming communications driven," he says. He adds that companies which ignore this "will not count" — in the super league there will be IBM, AT&T and Motorola.

Another encouragement for Motorola, according to Voice, is the proliferation of the Unix operating system on 68000-based machines. "I've never seen anything like it — I get four approaches a week from Unix software companies that want to do a deal — without Unix or Pick you'll be dead," Voice says.



VOICE... "The industry is becoming communications driven."

He describes the interest in Unix from major corporations as "phenomenal". "Organisations like British Telecom and BP are making commitments to standardise on Unix. If I was with ICL, I'd be looking for another job."

Voice says that Motorola will release a Unix "front-end" and database management system for the office environment this year. This year will also see Motorola introduce Convergent Technologies kit as the 6000 family — a top-end 600 system, which will be based on Convergent's Megafame, and a bottom-end system 100, which is the Ngen workstation. Voice claims that if anyone is

sure of products from Convergent, it is Motorola. Motorola is a major supplier to Convergent. First up from Motorola Information Systems in the UK this year is the Series 5000 office automation system. In effect this is an upgrade of the company's Series 4000 Four-Phase machine. There are two models in the series. System 700 comes with 1½ Mbytes of main memory, up to 900 Mbytes of disc storage, and supports up to 64 devices, including 32 Fasttrak terminals. The System 800 processor has a cache-memory and offers twice the power of the 700. Motorola 1983 results on page 14.

Software grant delay opens door to American take-over

by John Kavanagh

DELAYS to a £16,800 government grant for a project aimed at bringing UK university software to market have opened the way for an American organisation to take over the project — and 40% of the income.

Research Corporation, which is setting up a software venture and opening a UK office, is inviting UK universities to submit their packages for inclusion in its new software catalogue.

Research Corp is a non-profit-making body with a \$50 million endowment and royalty income of \$10 million a year. It provides patenting, licensing and marketing services for universities' inventions

and already has close links with many UK researchers.

The first software catalogue is due out soon. Research will sell and support the products and take 40% of the revenues.

Meanwhile the UK's National Computing Centre and the Department of Trade and Industry are still haggling over a £16,800 grant to back a survey of the university software available. A similar sum has already been promised by the NCC and the British Technology Group.

"Good ideas have been put forward, but the NCC seems to be failing to get the answer we'd all like from the department," says Lawrence West, director of Indus-

try Liaison at Bradford University, a driving force behind the NCC scheme. "As far as universities are concerned we simply want effective marketing through a successful organisation. Research offers that — but 40% of the revenue will go to the US."

NCC director David Fairbairn says: "We wanted to do this ourselves, but at least someone's going ahead."

Last November Fairbairn told the department there was "a very important task to be done". Appealing for the grant, he wrote: "An opportunity will be missed if an activity is not now mounted to develop links between universities and industry."

Alvey men plan to lead the world

by George Black

THE directors of the Alvey programme have announced plans to set world standards for artificial intelligence languages. They will spend £3.75 million over the next five years on a project involving private industry, universities and government research laboratories.

A team of around 30 experts will be led by Mike Todd of GEC, with the academic side being co-ordinated by Cliff Pavlin of the Rutherford-Appleton Laboratory. The work will centre on Edinburgh University's DEC-10 Prolog and Imperial College's Microprolog.

The directors are keen to establish firm ties between academic products and software houses which can sell them, as has happened with Sussex University's Poplog and Systems Designers. GEC will be closely involved in the project, and will be keen to get its hands on tools to run on its new

Series 63 machines, so that they can offer the same rich working environment that is available on DEC's Vax.

Chairman of the steering committee, David Thomas of the Alvey directorate, says: "Setting world standards is a pretty ambitious target, but we have to aim towards it. There is a fair amount of chaos in artificial intelligence at the moment and there are far too many dialects. Now there is an opportunity for Britain to lead in standardisation."

Britain has lagged behind the US in the development of Prolog, but is better placed to take on the challenge with Prolog, in which it is still the leader, despite the Japanese Fifth Generation effort. With Poplog, the UK is "in the driving seat," as Thomas puts it.

Thomas says the work will be spread over the full five-year term of the programme, though some results should start to emerge after three years. The artificial intelli-

gence languages will be used to develop tools for further research in the realm of intelligent based systems and software engineering.

The directorate must support the real time Pascal, Ada and Modula. It has just spent £2.5 million on hardware — after buying Series 63s last year — but has added to this five Series



BALDWIN... "The problem is no longer mere ignorance."

HP slams education but promises 700 jobs

by Dave Madden

HEWLETT-PACKARD has announced further investment in the UK, with the promise of another 700 jobs at its Scottish telecommunications plant by 1987.

But UK managing director David Baldwin has renewed his criticism of UK education policies, with the warning that unless there is immediate action to increase the number of high quality engineering graduates available to the UK computer industry, the prospects of competing internationally would be severely diminished.

Baldwin made his remarks on the occasion of HP's announcement of its 1983 results for the UK. On a similar occasion last year he said he would talk directly to the government on the issue of education policy.

In the year to October 31, 1983, HP UK reported turnover up 20% at £203 million, but pre-tax profit fell 5% to £12.5 million.

Baldwin claimed that the fall in profits was the direct consequence of "a deliberate year of investment". During 1983 internally funded investment grew by 67% to £14.7 million. The company has put in a new marketing organisation for its personal computer effort, while it had to cut margins to maintain price competitiveness and offset unfavourable exchange

rate movements. In 1983 Hewlett-Packard's UK workforce grew by 11%, as did its exports — to £30.3 million.

Baldwin said that he expected to see the investment reflected in the bottom line very quickly, and the first quarter of 1984 showed a strong return to profit growth.

Moving to the education issue, Baldwin said: "There will be a severe shortage of qualified science graduates entering industry by 1987 — we now have hard data showing that there is a considerable shortfall — this is a problem of an order of magnitude and it is growing."

Baldwin stressed that the problem is no longer mere ignorance, that there is as much frustration within Whitehall as the industry. "I cannot believe that with so much debate there is so little movement — that nothing more specific is happening," he said.

"The government must bring industry and the universities together in a coupled programme with clearly defined objectives," he said. "The consequences of not doing so would be ruinous."

The 700 new jobs will be created at HP's telecommunications plant at South Queensferry, Edinburgh, where the company is setting up its first microwave operation in Europe. Initially the plant will as-

EEC is set to settle its IBM quarrel

by Keith Holder

THE European Commission will reach a negotiated settlement to its nine-year-old anti-trust battle with IBM by early April.

John Perry, head of the European Commission's restrictive practices directorate, said last week that the whole issue would be resolved in the next nine weeks, and that it could be wrapped up even sooner.

This follows settlement proposals made by IBM early last year which are believed to contain a fundamental shift in the company's position on the announcement of interfaces for its products and the supply of software details to its European rivals.

The two original plaintiffs in the case, plug compatible manufacturers Amdahl and Memorex, are saying little on this point beyond the statement that the new proposals gave cause for hope that the whole episode would not be a waste of time.

The charges against IBM are that it refuses to release technical interface information about new products until it makes first deliveries, that it bundles memory component into its processors and that it fails to make the latest software developments available to users of plug compatible equipment. The Commission holds that these practices illegally restrict the trade of other companies.

Earlier this year BASF's Rolf Brillingner said that if the case against IBM was dropped, European manufacturers would have to bring fresh charges, or face complete domination of the European market by IBM.

Brillingner's fear, shared by two US plug compatible makers Amdahl and National Advanced Systems, is that IBM could influence European standards in its favour, particularly for networks and interfaces, if it is allowed to keep details of its products secret until the last minute. It could, they

say, establish a *de facto* standard by sheer weight of numbers due to the company's market dominance.

Richard Clarke, Memorex' UK director of legal affairs, criticises the companies which had not joined Amdahl and Memorex in the original complaint. He complains: "If they are so concerned with the issue, why didn't they come forward earlier and join us in presenting the case to the EEC?"

He says that even if IBM agrees to comply with requests to disclose product details earlier, other manufacturers in Europe will still have to be on their guard.

The EEC's restrictive practices directorate spent over five years preparing its case against IBM. This was followed by a series of challenges by IBM.

IBM held that the Commission's proceedings mean that it acted as prosecutor, jury and judge in the but the European court ruled that the case could proceed and it was heard in February, 1982.

Project Universe is disbanded

PROJECT Universe, the publicly-backed high-speed experimental system to link local area networks by satellite, has been disbanded.

The project was set to come under the wing of the Alvey Committee later this year, but the committee has decided not to take it on its entirety.

"We see Project Universe as such as dead," says Brian Oakley, director of the Alvey programme. "The Project Universe consortium did apply to us for support, but in a way, that followed the old Project Universe style. We rejected that."

The original Project Universe lumped together three different aspects: the provision of the network with links via the European Space Agency's orbital test satellite (OTS); research on how such networks should be put together; and experiments on its use.

"We see research which would lead to the provision of a high-speed network as important, but limited," says Oakley. He estimates that the Alvey programme may put aside something like £10 million for it.

By separating the different parts of the old Project Universe, he hopes more people will get involved.

"At least two consortia have come to us already," he adds. "One of them is the old Project Universe consortium — which is not surprising."

The industrial partners involved in the project were British Telecom, GEC and Logica. They worked with the Science and Engineering Research Council. According to a GEC spokesman, they may well try to raise funds to develop their own commercial system based on the original concept. The

Five charged in New York

FIVE men were arrested last weekend in New York, charged with conspiring to smuggle \$1 billion worth of classified high-tech military equipment to China, after a year-long undercover operation by US customs agents. The arrests came after a US agent, posing as a technology broker, had met with the five men on Saturday night, and been given a list of 14 items they wanted to buy, including missile guidance, radar jamming and electronic surveillance equipment.

HP launch

HEWLETT-PACKARD has moved into satellite communications with voice and data private network service for HP 3000 users. This service, launched last week in the US, is a joint venture with Vitalink Communications Corporation, and will allow 3000 users to bypass the telephone network and communicate with each other through earth stations and satellite channels.

Telecomms defeat

THE government suffered its first defeat over the Telecomms Bill in the Lords on Monday. An Opposition amendment to ensure people living in rural areas would not have to pay more for telephone installation and maintenance was carried by 118 votes to 106.

Wang joins

US MINICOMPUTER manufacturer Wang last week joined the Department of Trade and Industry's Office of the Future project. Wang equipment, including its new Professional Image Computer, will automate the National Coal Board's personnel department.

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ICL goes to police over damaging document

by John Riley

ICL has threatened to call in Scotland Yard to investigate a document that formed the basis of the article in the *Sunday Times* last December which wiped £20 million off its share value.

But although Scotland Yard confirmed that ICL has been in touch, it had not, at the weekend, begun any investigations, and was waiting for ICL to make contact again.

The article stung ICL, in a statement issued last week, ICL says the story "purported to reveal serious business problems facing

the company. As a result of extensive internal investigations, ICL has reason to believe that the document is a forgery.

"This is supported by the fact that not one of 20 senior executives claimed to be recipients ever received it."

A question mark hangs over the reasons for setting the article in print. ICL's chairman, Sir Christopher Laidlaw, modified the City at the annual general meeting the week after the article had appeared.

There is speculation that the recent move may be aimed at much

internally as externally. The allegations suggesting that ICL's future looked far from healthy were made only days after ICL announced that it had doubled its profits and increased its turnover by 17% in 1983.

One of the more stinging points made in the *Sunday Times* article was that ICL's share price had fallen 20% since its mainframe business may be late.

In the past, ICL has made little use of D effort, and has been slow to respond to its own advice.

development staff. As long as ICL has safeguarded against doing that, and makes no blunders like the attempted re-employment of the Penn development team from Dalkett to Kidlington, then informed sources within ICL believe the DMI will be available at the end of the year.

Last August, it was announced that the DMI would be delayed until later in 1984. That delay was due to a change in ICL policy, with ICL now going for a multi-stage, thought to be a more realistic approach to the DMI.



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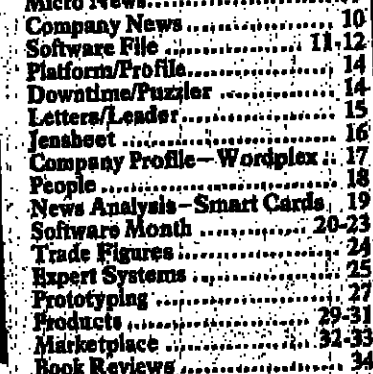
Tebbit tells users not to worry



Software Month looks at distributors



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ADDs opens and closes in days

by John Riley
ONLY days after launching a new terminal in the UK, US terminal manufacturer Applied Digital Data Systems (ADDs) has closed down its UK-based Displays Division European sales office.

ADDs believes that it can give its European terminals distributors better support and service from New York than from London. The company is still keeping its office, which handles business systems using the Pick operating system.

"We are not slamming the door on Europe," emphasised John Witherow, ADDs vice-president and general manager of Displays Division. "We have transferred our European sales office functions to our corporate office, and these distributors can now talk directly to the factory, engineers and customer marketing, without going through an intermediary in the UK."

"It is not much different for a German distributor to phone the US from Munich as to phone the UK," he says, adding that European distributors are happy with the new arrangement.

According to Don Wood, managing director of Data Dynamics, "Twelve months ago ADDs had six distributors in the UK covering the range. Now there's only us, as we've outsold everybody. ADDs has ended up with one good distributor in each country and ADDs decided that we should run the show."

"We don't want ADDs as a middle man in Europe. We're totally self-supporting and ADDs' move will also help us improve our own responsiveness," Witherow adds.

Data Dynamics recently bought the manufacturing rights to Shelton Instruments' microcomputers. Riva Terminals is another ADDs distributor, but it specialises in graphics terminals.

Witherow denies that the new arrangement would make it difficult for ADDs to expand its distributor base.

"I don't see any change in our international distributor programme," he says.

"New prospects can find out what sort of organisation we are by making telephone calls."

"Our current distributors are very strong on the support element, and customers look upon the distributors as vendors."

He explains that the Systems Division products, which are sold through dealers, are a different kettle of fish and need a sales office.



WITHEROW... "We are not slamming the door on Europe."

SALES BRIEF Racal brings Siemens sum to £6 million

RACAL has now exported computer-aided engineering equipment worth £6 million to the West German electronics giant Siemens after announcing a single order for one million pounds for its Calc and Maxi systems.

The systems are used in prime circuit board design, and after the latest delivery, Siemens' text and data communications development arm in Munich will use the Calc and Maxi for data capture from schematic drawings. Racal-Redac has now sold 100 CAE terminals to Siemens, 300 to West Germany, and 600 worldwide.

Aussie deal

SARASOTA Automation, which makes computer-based equipment for measuring gas flow, has won a £500,000 order from Australia. Thirteen metering systems, with associated software, are to be installed on the 1,100 mile Dampier to Perth pipeline in Western Australia.

Fluid partners

PERKIN-ELMER has supplied two 3250 supermini computers to its own Partnership Plan dealer Cham for consultancy work in fluid dynamics, combustion and heat flow. Cham is developing computer models for these applications.

RAF upgrades

THE Royal Air Force has ordered two pairs of ICL 2957 mainframes to upgrade the computer system serving its equipment supply depots. The main application is control of the collection and dispatch of over a million different stock items to supply RAF bases throughout the UK.

Midas wins again

BIS SOFTWARE has scored another export order for its Midas banking system in a £190,000 contract with United Gulf Bank in Bahrain. The system runs on IBM minicomputers and contains 1,100 programs, some tailored to each bank's needs. Midas has now been installed at 330 banks in 52 countries, and has twice won BIS the Queen's Award for Export Achievement.

More gas orders

FERRANTI Computer Systems has now sold 500 terminals to North West Gas after taking a further order for 200 to be supplied over the next two years. The latest order is the third from NW Gas, and includes 30 PT7-154 controllers as well as the terminals for connection to an ICL 2900 mainframe.

Hall copies sister

ADAM Hall Supplies, wholesaler of amplifiers and special effects equipment for live music, has gone to Nixdorf for a mainframe to handle stock control, order processing, and word processing. A similar Nixdorf 8870 computer is used by Adam Hall's sister company in West Germany.

Centre-File's £1m

BUILDING societies have spent over £1 million on bureau and turnkey services with the National Westminster Bank's computer services subsidiary, Centre-File, in the last two months. The company has supplied Eastbourne Mutual Building Society with a system based on Philips Counter Terminal equipment linked to its bureau. The subsidiary's other orders include contracts from Hinckley & Rugby and Sussex Mutual building societies, which are moving from the bureau service to a turnkey system based on Texas Instruments Business System 800 computers.

ICL tipped to win PO millions

by Philip Hunter
ICL is not favourite to cash in on most of the £100 million worth of business from the Post Office's counter automation programme announced last week.

ICL and three other companies, Philips, NCR and Burroughs, have taken part in trials at four post office branches, each supplying counter terminals designed to handle all post office transactions. All four will be considered when the contract goes out to tender in the spring and other suppliers will not be excluded. Post Office director of Information Technology, Charles Read, hints that ICL, as the only UK-owned company among the four participating in the trial, is a strong favourite.

"There is plenty of choice among UK-made equipment, and it would probably be frowned on if we didn't buy British," he says.

However ICL is unlikely to pick up all the business, because for one thing it cannot yet supply automatic teller machines (ATMs). Part of the automation plan is to install 180 ATMs in post offices by 1986.

Both NCR and Philips can supply ATMs and NCR is the market leader.

The contract for the software will probably be awarded separately, says Read, because the major contractor would be quite likely to sub-contract it anyway. Logica is favourite to win the software contract, since the company has already been given the job of designing the network. The Post Office has also hired Pactal as consultants to help control project management.

The outline is to introduce automatic teller machines (ATMs) for dispensing cash, and eventually to



READ... "It would probably be frowned upon if we didn't buy British."

give all counter clerks terminals linked to computers to register transactions and verify cash withdrawals.

A first stage investment of £20 million is planned to install equip-

ment in 1,200 post offices, starting at the end of this year. About 50 post offices will come online each week, extending counter automation to the 2,000 main and 7,000 sub-post offices by 1990.

Another crucial aspect of the programme is to link the post office computer network to the Department of Health and Security, Driver and Vehicle Licensing Centre and the National Girobank.

Ada skills bring in the dollars

by Philip Hunter
US ADA programmers are reeling in a boom in the language, now that fully validated compilers are available. Programmers can bump up their salaries by 20% if they learn about Ada, giving an extra \$4,500 for a junior, and \$8,000 for a team leader, according to the US AdaData newsletter, published by International Resource Development.

Demand for Ada programmers in the US is rising at all levels, following the US Department of Defence stipulation that key defence projects must be based on the language.

UK Ada programmers have at present rather less reason for euphoria, following the cancellation of the £9 million UK Ada MCHAPSE project, and lack of certainty about government policy on real time defence languages.

There is hope, however, that part of the UK project will soon be resurrected, and both the Ministry of Defence and Nato are still committed to the language, according to Commander Trevor Syms of MoD's central staff.

Meanwhile UK Ada programmers are already in demand, and being paid more than the average programmer, according to Richard Emerson, marketing manager of High Integrity Systems, which employs five Ada programmers working on board level implementations of Intel's Ada compiler.

"People already employing Ada programmers have to be entrepreneurial companies working on advanced projects," he says.

In the UK, the shortage is not so much of Ada programmers, but of well-trained programmers in general, Emerson says.

Micro firms fall out

by George Black
TWO top micro software companies have fallen out over marketing accounting packages in Australia.

Compact Software International of Darling has parted company with Peachtree, the micro arm of the leading US vendor MSA. It had an agreement which gave Peachtree the right to distribute Compact's products in Australia. But Peachtree decided to delegate its marketing to a local firm, Johnson Brothers Associates.

Compact Australia managing director Dell Bronson says the company had been afraid Johnson would pick up Peachtree's software but neglect Compact's, so it decided to go it alone and set up its own dealer network.

"We thought Peachtree should have spoken to us before any steps like these were taken," says Bronson.

She says that Peachtree had been keen to take on Compact Software at first because it was ready in an Australianised form earlier than Peachtree's own.

Air Call calls up the French

by Donald Kennett
AIR Call is talking to the French company Matra about importing its Mintel electronic telephone directory terminals.

Both companies say that talks are at an early stage, but Air Call has bought about 100 Mintels for its own use and is preparing to put them through the technical approval process required for attaching equipment to the public telephone network.

Air Call's own use for the terminals is in conjunction with its newly launched Pocket Telex service (see page 8). The company would also like to sell the terminals to customers using the service to send messages directly to staff carrying the Pocket Telex units.

Since developing the central system for the Pocket Telex service, Air Call has made two overseas system sales, in Sweden and Canada.

Air Call's own operators use Tandberg terminals to enter messages on behalf of clients, but the company also wants a low-cost alternative terminal for people who make less frequent use of their mobile messaging facilities.

Acorn gets factory cash

by Philip Hunter
BBC ACORN specialist Midwich Computers has raised £250,000 to build a factory to assemble disc drives and possibly microcomputers at its base town, Diss in Suffolk.

The money for the project came from a group of its institutional shareholders, including ICFC (Industrial and Commercial Finance Corporation).

Managing director David Watson says that the investment was clinched by the company's good half yearly results, a profit of £131,000 on turnover of £1.2 million.

As well as expanding in the market for assembled products through the new factory, Watson wants to build on the company's present education market. Midwich is one of seven approved suppliers of upgrade kits for the BBC Acorn microcomputer, and has supplied an Italian Z80-based microcomputer to local authorities for use in education.

More gas orders

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By Royal appointment

THE Queen has joined the UK's 750,000-strong community of Commodore microcomputer customers.

And the US firm has a Royal Warrant of Appointment to prove it.

Commodore notepaper, advertisements and products can now bear the words: "By appointment to Her Majesty the Queen, manufacturers of computer business systems."

The company is the first to have the words "computer business systems" in its warrant.

Other computer firms which are "by appointment" include IBM, with word processors and typewriters and NCR with accounting systems.

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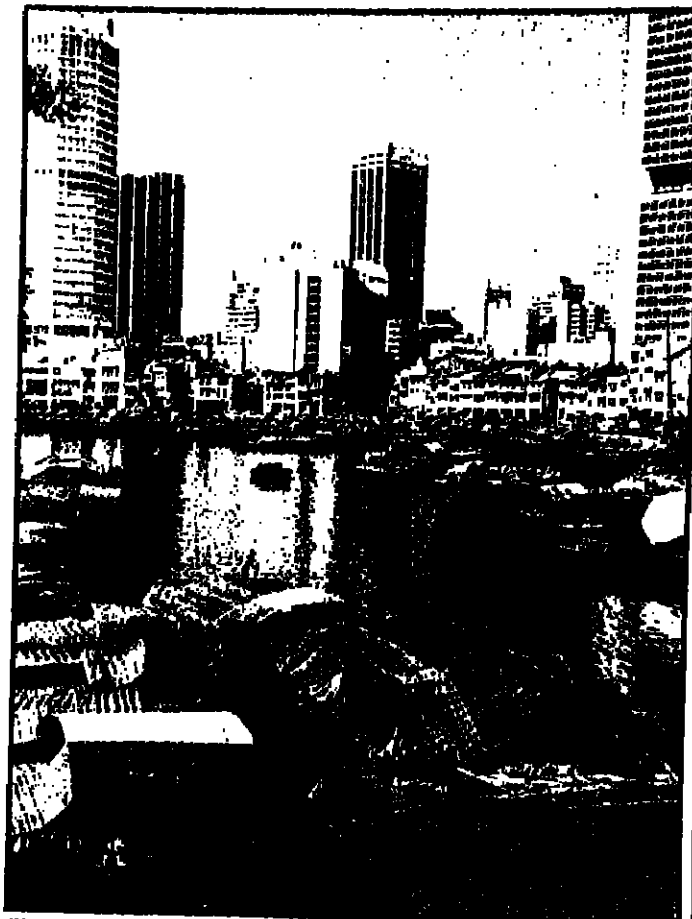
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Singapore... membership of the IDPM is improving.

IDPM spreads word in Asia

by John Kavanagh
UK COMPUTING qualifications will be promoted across south-east Asia - one of the world's fastest-growing computing markets - next month when Ted Cluff, secretary-general of the Institute of Data Processing Management (IDPM) visits the area.

"I'd like to encourage formal recognition of IDPM qualifications by the Malaysian government," Cluff says. "Malaysia is where the IDPM's real strength lies in the Far East. We have over 800 students and 50 professional members there. Around 310 took our examinations in December."

Cluff's visit to Malaysia, Hong Kong and Singapore comes just as the UK's National Computing Centre is pushing for more business in the region. NCC director David Fairbairn was in the area last summer, and he pointed out

that the countries had both a need and historical ties with the UK.

In Hong Kong, Cluff will encourage a new IDPM branch with 42 full members and 50 students. He says there is a "modest presence" in Singapore, but in the last month, membership there has improved, with nearly 90 students from one school joining and over 150 from another college showing interest in the exams.

"Almost half the IDPM's 2,500 student members are in the Far East and around 8% of the 5,000 full members."

Other strong overseas branches are in Sri Lanka, Nigeria, Greece and Malta. "No one knows how these things start," Cluff says. "It just seems to spread by word of mouth or the bush telegraph. IDPM people pop up all over the place."

Lifeboat resurfaces after four months

SOFTWARE distributor Lifeboat Associates has emerged in the location of Marlborough, Wilts, four months after closing its doors in London.

Lifeboat's new distribution agreement with Roundhill Computer Systems of Marlborough is the first sign of life since Lifeboat ceased trading in October with the promise of re-organisation and a new look.

Roundhill has been picked to distribute the Lifeboat products, based on the Unix language C, because of its involvement with both C and Lifeboat. Roundhill director Tim Frost has close links with

Lifeboat, and is the author of the Panel screen design tool, which is part of the suite of C development tools known as C Chest.

The C Chest includes the Lattice C compiler, the Plink-86 overlay linker, the Panel screen design aid, the PMATE programmer's editor, and the Halo graphics package.

The Lattice compiler is available in a new release supporting MS-DOS and PC-DOS. Roundhill's Panel screen designer also has a new release supporting Lattice C.

The product already works with Cobol and Pascal, and the IBM language PL/I.

Ex-Storage men buy abandoned project

by Keith Holder
US PLUG compatible manufacturer Storage Technology has sold the virtual storage system project it had abandoned to four former employees, who are starting up a company to carry on work on the system.

Storage Technology will have a minority financial interest in the new firm, Data & Expert Systems International (DESI), together with Borg Warner.

Although neither investor has any automatic rights to manufacture or market DESI products,

Brian Molloy, Storage's UK managing director, says: "If it can produce a useful product, we would be interested in talking about a deal for distributorship."

The move comes after Storage Technology abandoned its mainframe development programme, and is seen as part of a wider plan by the company to streamline, supporting only its plug compatible disc storage and optical disc devices.

The latter is known to have soaked up a lot of the company's financial resources, and is only just

beginning to be shipped to reference sites in the US. The company's 80 series of IBM 3380 compatible disc systems has also been slow to get off the ground, though Molloy says he is confident that it has a healthy future.

This has fuelled speculation that Storage is pruning its activities and trying to cut costs while its mainstream products need support.

By reducing itself to the role of minor investor in DESI, Storage is able to keep tabs on any developments without having to report publicly results of its

financial interest.

Barry White, head of DESI former head of virtual systems development for Storage Technology, says that future will closely follow the concept, but not necessarily the software or hardware previously developed.

He indicates that DESI will build its own control disc and storage units, unlike Storage plans to use Magnuson IBM compatible hardware, though it would still offer IBM mainframe compatibility.

Passmore quits DEC

by John Kavanagh
DIGITAL Equipment's UK marketing manager, Bill Passmore, left the company last Friday following former UK managing director Darryl Barbé to Sun Microsystems.

Barbé left two months ago, soon after microcomputer business manager Lawrie Cattell. Paul Musson, who replaced Cattell, has moved up again to take Passmore's job as number two man in the UK. He will work with new managing director Geoff Shingles.

Passmore's departure comes after a year in which DEC lost not only Barbé but also eight top executives in the US. DEC has just promoted nine long-serving staff to vice-presidents to fill the gaps.

Passmore has been marketing manager since 1979. He becomes managing director of Sun's UK company. Barbé is head of European operations. Sun, a US firm, builds a graphics workstation based on the Motorola 68000 processor and offering the Unix operating system and Ethernet local networking.

Musson joined DEC in 1977 and has had management jobs in sales and sales training. He will keep his responsibility for personal computers.

The nine US promotions involve sales, manufacturing, peripherals, software and education.

Customers are showing little concern over the UK moves. "I see DEC as an entity," says Cliff



PASSMORE... Joins Sun.

Evans, deputy chairman of the users' association. "Personalities make a bit of difference, but people move around a lot in this business. From my talks with users, this does not seem to be a big concern."

Bull and Philips reach agreement on smart cards

by John Riley
RIVAL smart card manufacturers Bull and Philips Datasystems last week signed a bilateral agreement to standardise the technology in the cards' production.

Both the French owned Bull and the Dutch-owned Philips Datasystems produce smart cards three years ago. It will use programmable Microprocessors and try to bring their joint technology together by the International Standardisation Organisation as a world standard. Both companies will still compete industrially and commercially.

Smart cards, which are as cards containing a microprocessor and memory, are increasingly used in the retail, banking, security industries. There is a growing demand from these industries that standard cards are now used everywhere.

"Our major banks, for example, prefer two sources rather than one and the establishment of international standards called for by us is an essential condition for further development of this technology," says a Bull spokesman.

The agreement gives both companies transfer rights, so that they can exchange the electronic data masks already in use as well as those they develop in the future.

By taking the lead, both companies hope to pre-empt IBM and other companies developing smart card technology.

Only last month, three Canadian companies got together with a bid of a \$225,000 government grant to produce smart cards. See also page 19.

Hoskyns is anxious to go buying

SYSTEMS house Hoskyns is to hit the acquisition trail, and is looking for both products and companies to buy.

Managing director Tony Robinson explains: "We set up the project at the beginning of the year to look at systems or companies that we should purchase. We have always shown a consistent and stable growth of 20% to 30%, and this is one of the options."

Robinson will not specify the areas that Hoskyns is looking at, but makes it clear that the company will not be restricting itself to the UK. He says: "We have always chosen to expand our activities by moving into something close to our existing products."

The Hoskyns director responsible

for the project is Tony Fisher, who currently handles the company's fourth generation or "programmer productivity" products. The bulk of these are currently software systems developed by US software house Mathematica, which was acquired last year by Hoskyns' parent company, Martin Marietta. Mathematica is best known for its database management system, Ramis II.

Barry Hodson, head of Hoskyns' industrial systems division, is due to go to the US to look at systems developed by Marietta Information Systems.

Martin Marietta is a US conglomerate with interests in construction materials, chemicals, aluminium and aerospace. The lat-



ROBINSON... "Martin Marietta has always allowed us to be independent."

ter is expected to bring in \$3 billion in revenue this year, and the company is actively shedding some of its non-aerospace subsidiaries.

Robinson says: "Martin Marietta has always given us our independence. Dealing with the company has been like dealing

with an ordinary group of shareholders."

About one third of Hoskyns' current revenue comes from its facilities management side, and the company claims to have the biggest turnkey systems operation in the UK. It specialises in DEC

systems and also ships a smaller amount of ICL-based systems.

Robinson estimates that the company's personal computer side is selling at a rate of \$3 million a year now. It sells IBM, DEC, Hewlett-Packard and Apple's Lisa.

Universities get silicon centres

by Nuala Moran
SILICON broking centres are being set up at five universities to help academic researchers gain access to chip technology.

The centres will be financed by the Science and Engineering Research Council (SERC) with the aim of providing a fast prototyping service for silicon chips.

The centres will be at Edinburgh, Newcastle, Southampton, University College London (UCL) and the University of Manchester Institute of Science and Technology (UMIST).

Three of the centres will have links with industry. UMIST will collaborate with Ferranti, Newcastle with Plessey and UCL with GEC.

In the case of the UMIST centre, this means that Ferranti's uncommitted logic array (ULA) technique will be available to researchers in a variety of disciplines who need help in designing chips for instruments or apparatus.

UMIST is getting £300,000 to set up its centre. This will be spent on the purchase of capital equipment and in recruiting four project officers.

NCC bids to make names for itself

by Claire Gooding
THE National Computing Centre (NCC) is attempting to convince the Registrar of Trademarks that its Filetab and Userlab products are worthy of registration.

The NCC wishes to protect itself against any future disputes over the names, but first has to prove to the Registrar that neither name is a generic term, or recognised as anything other than the name of a particular product.

NCC has just come to the end of a protracted lawsuit against Filetab Support Services concerning Userlab and FSS, and wants to guard against any future disputes.

"It's a question of protecting our property rights to the name," explains NCC contracts manager John Morris. "At present, if someone else were to use the name, we could sue for passing-off, but it would be up to us to prove that our name and reputation were being damaged. If the names are already

registered, it gives us a head start, as the burden of proof then shifts to the other party."

One of the most common problems is proving that the name is not a commonly used term with a general meaning, rather than a specific product. "Since we've strung together two terms common in computing, File, and Tab, the Registrar may want further proof of our reputation, to prove that people recognise the product by that name."

The fact that the name Filetab is used as part of Filetab Support Services is no hindrance, nor should it cause any problems for either party, says Morris.

"It goes some way to helping our case, as it proves that the product is widely known under that name," he adds.

The NCC has been distributing questionnaires to people in the computer industry as part of preparation for its case.

NCR chip set finds buyer

by Keith Holder
HONEYWELL has become the first outside customer for NCR's microprogrammable 32-bit chip set. The agreement, signed last week, also calls for the companies to work together on a customised interface chip which will form part of a new Honeywell system.

The system is likely to be a 32-bit virtual machine which Honeywell committed itself to at the start of the year. It will form part of Honeywell's DPS-6 series.

James Renier, Honeywell's president of information systems, says that the decision to go for the NCR chip set is in keeping with the company's policy of reducing research and development times, and hence product development times, by the strategic purchase of technology, and entering coopera-

tive agreements.

He says that the new system will retain compatibility with selected hardware and software products.

Charles Esley, NCR's president and chief executive officer, says that this will be the first of many such agreements. He adds: "The NCR/32 can emulate a variety of system architectures, and will appeal to a wide customer base, enabling them to exploit this advanced technology."

NCR claims a price performance advantage of up to 40% for the chip set, and says that it outperforms all of its 32-bit rivals.

The main advantage to outside customers, says NCR, is the external microprogram store.

This allows instruction sets to be tailored to fit existing software.

UK-BASED SCANDINAVIAN SOFTWARE DISTRIBUTOR

Wants to get in contact with one or more companies for co-operation in marketing of software to the Scandinavian market.

The Board of Directors will be in London from February 16th to 19th, and they will be available for meetings. Please contact Mr. M. Bell at Tel: 01-839 2202 in order to make necessary appointments.

Later contacts should be made to: Foeyen Co, Pall Mall, London. Tel: 01-839 2202

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Air Call hopes for a mobile world

by Donald Kennett

THE beginnings of a universal, low-cost mobile text communication service have been launched by the radiopaging company Air Call.

The service, which Air Call calls Visual Paging or Pocket Telex, uses Motorola receivers roughly the size of a cigarette packet. The receivers have a 12-character liquid crystal display and a 160-character memory.

Messages can be accepted into the system from any kind of computer or terminal with a modem or from the telex network, and the system prompts for the correct format.

Deputy managing director Maurice Henchey says: "The telex network continues to expand at more than 30% a year and we expect to give a boost to the growth."

Henchey says the company has invested half a million pounds in the first phase, which covers the London area from Borehamwood to Croydon and from Darford to Hounslow. It aims to make major extensions throughout the UK this year. The investment includes a 10,000 line public telephone exchange bought from British Telecom, which enables each paging unit to have its own telephone number.

It has also developed software for the system, to run on Digital Equipment Vaxes, Rair Black



HENCHY... "Telex network continues to expand at more than 30% a year."

Boxes, Tandberg intelligent terminals and specialised processors for telephone answering and radiopaging services made by Startel and B&L in the US.

It has already sold systems products and software developed to the UK service to the Swedish TTT and a paging service in Canada, and it will be able to use them in its operations through

subsidiaries and partners in Belgium, France, Italy, Switzerland, Spain and the US.

It is able to provide software to support special applications of its services on users' personal computers and word processors through its subsidiary Air Call Computer Systems and through Allen Computers International, with which it works closely.

The launch of the Pocket Telex service has been delayed by development problems Motorola had with the receiver.

The delay has enabled Air Call to include from the start enhancements it had planned to add as the service developed, such as providing hard copy records from the service centre and storing messages in case they are lost.

MSC fund home learning kit

A "HOW to service your microprocessor kit" is to be developed with funding from the Manpower Services Commission. The kit will be part of an open learning programme to help micro servicing engineers update their skills.

It is being set up by the Micro Electronics Educational Development Centre (MEDC), in Paisley, Scotland.

Through its Open Tech Unit (OTU) the MSC will put £140,000 into the three year project to develop the programme. This will be matched by £140,000 from the Scottish Education Authority. The programme will consist of six modules, and people will be able to choose any number of these according to the skills they need.

The microprocessor kit will be used by people in their own homes to learn about fault finding. It is intended that the kit could later be used for fault finding on the job. This will ensure the learning is integrated with the person's job. Simon Perryman of the OTU says: "A number of options are

being looked at and a decision expected in March. The kit may be based on an adapted home computer, and one of the possibilities is an adapted BBC micro."

According to Perryman, a shortage has been identified in the microprocessor servicing area. "This, of course, is a growing problem because the number of microprocessors in the country is increasing rapidly. It is a very cost effective way of giving people the right skills."

"The idea is not to train people from scratch but to update skills already in that line of work."

Perryman says there has been tremendous interest from companies wanting to set up training schemes. British Leyland is spending £1 million over the next five years to set up drop learning centres with computers and videos to update the skills of the Austin Rover workforce in botics, engineering, and diagnostics.

OTU made a grant of £30,000 towards the centres.

MICRO NEWS Exxon and Zilog settle with NEC

by Keith Holder
CALIFORNIA chip manufacturer Zilog and its parent Exxon have ended their patents dispute with Nippon Electric Company (NEC) with an out-of-court settlement.

A spokesman for Zilog confirmed that NEC would be granted a licence to manufacture legitimate copies of Zilog's Z80 microprocessor and "some other as yet unspecified products". All charges against NEC have been completely dropped.

It was NEC's manufacture of Z80 copies which prompted Zilog to take the matter to the US International Trade Commission (ITC) last June and seek \$30 million in damages for patent infringement, from the Japanese company.

The ITC started an investigation, but this has been closed as a result of the settlement.

Ironically, the existence of NEC's Z80 copies on the market did much to boost sales of the Zilog product, as it provided micro makers with second source of supply.



HAVERSON... "Wanted to be ready on day one."

Intel bids for a fresh identity

by Keith Holder

INTEL has brought its iD1S and iTPS commercial database information systems to Britain, strengthening its bid to become a recognised systems manufacturer.

The two products will be distributed by Rapid Recall, which has been selling Intel kit for 10 years, and is now its No 1 distributor in Europe.

The products have been available in the US for six months, and have produced encouraging sales, says Peter Haverson, Intel UK divisional director.

Both systems are aimed at the lucrative multi-user, distributed systems market. According to Haverson, this market should be worth about \$600 million by next year. Intel is aiming for a 10% slice.

The choice of Rapid Recall as distributors was made to help target the systems at the right potential user base, says Steve Spill,

Intel UK systems sales manager. "Apart from our past relationship with Rapid Recall, we could see that they were already familiar with dealing with the customer base we are trying to hit," he adds.

Rapid Recall also made a "substantial investment" in setting up operations to handle sales and support.

Haverson says it was this, rather than any strategic planning that led to the delay between the US and UK launches. "We wanted to make sure we were completely prepared and ready to go on day one."

The systems offer users the ability to link up workstations or microcomputers forming a "data bus" between them which may then be connected to any mainframe, via a data pipeline, says Haverson.

iD1S is a combination of hardware based on the 8088 processor and software and in-

cludes an SQL compatible relational database (iDB), spreadsheet, word processing, electronic mail and calendar facilities.

It is based on Xenix, the Microsoft version of Unix, and allows users to download, and work on files, from the mainframe. iTPS is a similar multi-tasking system designed to be an applications generator for transaction-based systems incorporating a relational database.

Spill denies that the systems might bring Intel into competition with IBM's Popcorn multi-user system, when it is launched. "Our success will come from penetrating the OEM dealer market with these products. This is an area IBM has not really touched, so we won't find ourselves competing."

Haverson says Intel's internal demand for the much-wanted 8088 chip will not affect supplies to its outside customers as the volumes will be "relatively small".

Duport claims winner with micro bureau

by Philip Hunter

THE idea of setting up a microcomputer bureau service may sound strange at first because the hardware is now relatively cheap compared with the cost of running it.

But this is what Duport Computing has done in the West Midlands, and managing director David Kelson thinks he is on to a winner.

This argument runs thus: although the hardware is cheap, first-time business users are faced with the cost of software training, or hiring a systems analyst to run their computer if they want to

make the best use of it.

Users of the bureau can try out various micro and software packages before deciding on a particular system. Then they can go to Duport's new high-street shops, the first of which has just opened in Wolverhampton, to buy it.

Just as big businesses once found the old mainframe bureau an ideal temporary solution to their problems, Kelson argues, now the small business will find it so. "£100,000 to a big business is equivalent to £2,000 to a small business," he says.

"The user can come to our shop once a week, and run the application himself, or get one of our staff to run it."

The cost is £5 an hour for the use-it-yourself service, or nearer £10 if Duport's staff have to help out.

Duport plans to open more shops in the West Midlands to sell micro and software. In addition, on-the-job training will be offered through Duport's subsidiary, NK Training.

The first Duport retail shop in Wolverhampton stocks micros from ICL, Sanyo and ACT.



KELOSON... "On to a winner."

IBM-PC sales head for 20,000 in UK

by John Riley and Keith Holder

IBM Personal Computer sales failed to take off in Germany last year. Press reports say IBM sold only 7,000 PCs instead of the 16,000 it had aimed for.

But the UK is showing strong sales of the PC, mainly into large organisations. Estimates of the number of machines installed are as high as 9,000, and predictions on this year's sales top 20,000, according to IBM's dealer base. These figures do not include machines that IBM itself sells into large organisations. These could add as much as 30% to the sales figures.

The verdict of dealers like Hoskyns, Geisco and Byte Shop is that the IBM-PC will remain firmly attached to the business systems role, which will give it an enviable stability in the market-place.

Geisco's John Taylor says: "The IBM-PC is rapidly becoming the established standard for business micros, especially in large corporations."

One result of the German shortfall was the restructuring of

IBM Germany's marketing organisation recently. It has been divided into two units: the new markets unit, which is responsible for personal computers, videotex, telecommunications, robots, software and biomedical products; and the information systems unit, responsible for traditional markets and support.

Among problems reportedly facing IBM were low margins on the PC. Dealers pushed them only when specifically asked for them by customers, and the big distributors were slow to take on PCs because they feared losing out on the dumb terminal replacement market.

IBM Germany would not comment on these reports except to say that it was "satisfied with the PC business it has had."

There were signs that the IBM and PC market was picking up in Germany late last year, particularly because, with problems at Osborne, Victor, Atari, Apple and David, buyers were turning to IBM for safety.

IBM aims to sell 60,000 PCs in Germany in 1984.

COMPUTASTARS

DP's Olympics are about to start

COMPUTASTARS is here again. And what a competition. Bigger and better than ever, Computastars is now open to even the most unfit DP manager. Fear not if you find it difficult to lift a double gin and tonic, it is for you that Computastars has been brought into existence.

For alongside the ever-popular DP Olympics there will be a knockout darts competition for teams of three to five players.

But there is yet more. Not only is the ever-popular Computastars back, but a scaled-down version with three men (or woman) teams puts in an appearance for the first time. Aimed at the rank amateur player, the new competition promises to be one of the highlights of Computastars '84.

And in an attempt to find the fastest operator or programmer in the UK, Computastars bursts upon the scene. Two races, of 60 and 100 metres, will be held at each heat, the winners going through to the UK final. Although

entrants can be members of the Computastars team, captains might well be wary of letting a vital team member risk all during the luncheon interval.

Not content with finding the fastest coder in the country, Computastars also aims to discover the DP person with the most stamina. At the end of each meeting a devil take the hindmost, or Computastars race, will be held. All the contestants have to do is run around the track. Simple enough, but at the end of each lap the tail ender will be removed from the field, until a single winner is left.

To summarise: Computastars, Computastars and Computastars are the main elements of the competition. Entrants in each of these sections cannot enter either of the other main contests although they can go in for Computastars and Computastars.

Clear? If you have any queries, don't phone us, phone Gordon. Callers on 01-688 6690.

See you at Barnsley on May 5.



FOR the uninitiated, Computastars is a sports competition for men and women employed by computer manufacturers and users. There are four UK heats leading up to the final at Birmingham, and the winners there get the chance to go on to the European final where they will meet the Dutch, Belgian and German finalists.

Computastars calls for athletes skills on track and field, in general sports and in the gymnasium. Computer Weekly will be awarding gold, silver and bronze medals, plus individual and team trophies.

The rules of the competition

1. Teams will consist of not less than three and not more than five competitors.

2. Each team, other than a Veterans' team, is required to nominate a team captain who will compete for the individual title as well as being a member of the team.

3. The winning teams from each regional heat will be invited to participate in the national finals. Additionally, the highest scoring Veterans' and the highest scoring Small Unit team in each regional heat will be invited to participate in the national final.

4. The winning three men's and women's teams, together with the highest scoring Veterans' and Small Unit teams in the UK final will be invited to participate in the European final.

5. In each event, in each of the three regional heats and in the UK final, the nominated team

champion and two other team members nominated by the team captain.

6. The team captain must be one of the five nominated team competitors and the organisers will only recognise the team captain's selection for events.

7. Should the nominated team captain be unable to compete after the first event in a heat, then the team captain must nominate a substitute from the remaining team members. The substitute must continue to compete as the team champion in all remaining events. Once substituted the original team captain may not participate during the day's event. To win the individual title

the nominated team champion must compete in all events during the day.

8. Tie-Breakers: after all events have been completed, should there be a tie, then the winner will be decided as follows: team - the best performance in the last event where there was only one time/score recorded for the team; individual - the best performance in the last event where an individual time/score was recorded.

9. In the case of a dispute only the team captain will have the authority to represent the team.

10. At all meetings and on all points, the decision of the referee is final and not subject to dispute.

Eligibility for entry

THOSE eligible to take part in Computastars fall into the following categories:

1. Only personnel who are fully costed to data processing activities.

2. Only personnel who were employed by their present company prior to February 1, 1984, can represent that company.

3. Should a competitor leave the employ of the company he or she represents, that person will no longer be eligible to represent that company after the leaving date.

4. Companies may enter as many teams as they wish, subject to eligibility. A competitor may represent only one team, and having been nominated for team in the competition during the current year.

5. Teams wishing to enter the Veterans' section (men only) must wholly comprise members who are 35 years old or over on February 1, 1984. Teams in this section are not eligible to nominate a team champion, and event selection will be by any three members from the team.

6. Teams wishing to enter the Small Units section (men only) must meet the following conditions:

(a) The unit or company unit must employ less than 25 eligible people (men or women and including contract staff), within a 25-mile radius of the location of the team entering.

(b) The team will compete in the main competition and must nominate a team champion who will compete for the individual title.

7. Teams not entering the Small Units section may consist of members of the company drawn from any location.

8. Contract staff may be used subject to the qualifying conditions.

9. Once a team entry has been accepted there will be no refund of the entry fee.



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Position held.....

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Amdahl profit up 10 times at \$43 million

AMDAHL saw a remarkable improvement in its financial performance in 1983. Profit rose 10 times to \$43.2 million on turnover up 70% at \$777.6 million. Increased volume sales more than offset processor price cuts. In the fourth quarter profit was up from \$774,000 to \$15.7 million, and turnover ahead 55% at \$225 million.

President John Lewis expects further price reductions in 1984.

Harris boost

HARRIS has posted an 18% increase in profits for its second quarter ended December 1983, and says orders were up 30% because of a surge in demand for semiconductor products. Profit was up from \$15.6 million to \$18.4 million on turnover up from \$433.8 million to \$472.2 million. The figures include the results of Lanier Business Systems, which was merged into Harris in the same quarter.

Looking for home

MA BELL's orphans are looking for a home in London. The regional telephone companies formed in the break-up of American Telephone and Telegraph are seeking separate listings on the London Stock Exchange. Pacific Telesis and US West are the front runners.

Great debut

CML Microsystems has made a glamorous debut on the Unlisted Securities Market. Its shares managed a 58p premium over a starting price of 130p on the first day of dealing. At 188p the shares are on a prospective price earnings multiple of over 30, and value the company at £16 million — twice its capitalisation at the original tender price of 93p.

Ring for tickets

BARCLAYS Bank high technology group is sponsoring Barclays Technart, a high tech exhibition at the National Exhibition Centre, Birmingham. The show runs from February 21-25, and we have 50 complimentary tickets — street value £5 — to give away. Ring 01-661 8541.

Buoyant Cray

A STRONG last quarter boosted net profits at Cray Research by 36% to \$26 million on turnover up 5% at \$170 million for year ended December 1983. Chairman John Rollwagen says the company met its target to install 16 new systems in 1983 — six of them were the new models, three Cray X-MPs and three Cray 1/MS. Profit margins on these later models are much higher than on the old Cray machines, which were cut in price in 1982.

Micro takeover

EQUIPU, Bristol-based supplier of office equipment accessories and spare parts, has moved into microcomputer distribution with the takeover of Datalink Microcomputer Systems. Equipu inherits IBM-PC and Apple dealerships.

Cable puts its eggs in one colony

CABLE and Wireless's wish to take control of Hong Kong Telephone Company has been granted. It now holds about 53% of the company's equity in a move that makes C&W alarmingly dependent on Hong Kong.

Cable and Wireless bought 35% of Hong Kong Telephone (Telco) for £143 million last March from troubled Hong Kong Land. Its latest bid was triggered when the group took a further 3.4% stake from the LI family, which has extensive interests in the territory. Under Hong Kong takeover rules, any holding over 35% necessitates a full offer.

So far the 13% C&W needed to buy to take a controlling interest has cost some £60 million. Buying 100% would cost C&W about £300 million. C&W finance director Ernest Potter has said that the company would not be distraught if it failed to get the lot, but leaving Telco with a substantial minority could store up trouble. The companies have disagreed in the past as to

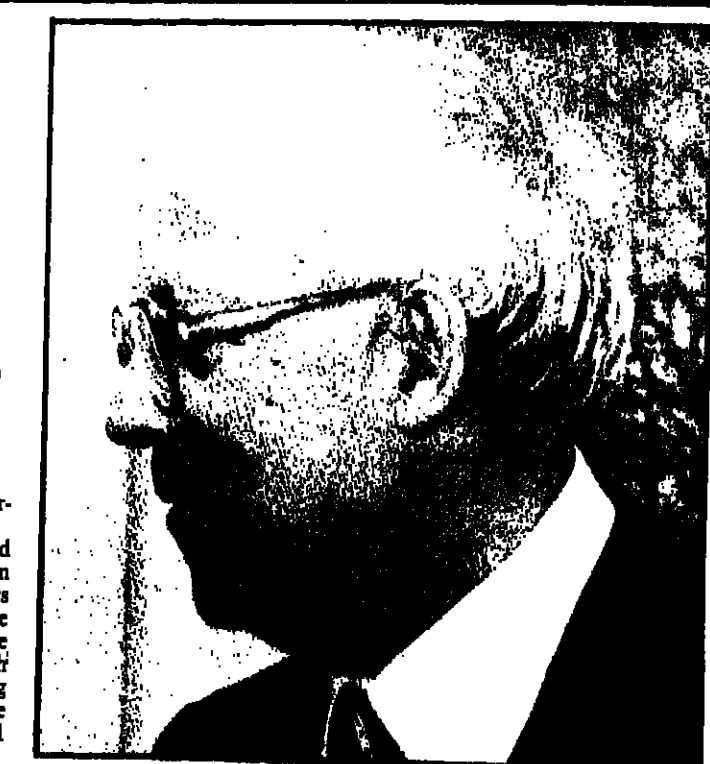
how to carve up the colony's international traffic revenues.

Some brokers had considered C&W's offer to be on the mean side and had advised shareholders against accepting it. Certainly the company has benefited from the downturn on Wall Street which took 50 points off the Hong Kong Stock Exchange. For its first stake C&W paid the equivalent of 11 times prospective earnings.

Its current offer of HK\$46 (£4.14) represents 13 times earnings, and a modest premium of 12% over the price at which Telco was trading before the bid.

The deal gives Cable and Wireless virtual control of Hong Kong's telecommunications system. C&W already provides Hong Kong with its telegraph and international phone links through an 80% owned subsidiary Cable and Wireless (Hong Kong). Telco operates the domestic system covering Kowloon and the new territories.

The move is part of C&W chairman Eric Sharp's grand plan to dominate the telecoms market in



SHARP... "China one of the most important markets."

the Far East, and China in particular. Sharp has said repeatedly that he sees China as one of the most important potential markets.

C&W has already made inroads into the Chinese mainland. In September 1982 it began a joint venture to provide telecoms facilities to China's fledgling oil industry. And last November it joined with provisional authorities to develop a telephone system for Shenzhen, a special economic zone on China's side of the Hong Kong border. C&W holds 49% of the venture, Shenda Telephone.

What may concern C&W shareholders is the company's dependence on Hong Kong while China negotiates to resume sovereignty over the colony in 1997.

Cable and Wireless (Hong Kong) is the major contributor to C&W's Far East earnings — £60 million in the year to March 1983, and some 55% of the group's entire trading profit in that year.

The offer shows great confidence in Hong Kong's political future — but does leave C&W looking something of a one colony company.

Immediate runs into the red

IMMEDIATE Business Systems was among the 10 worst performers on the Unlisted Securities Market in 1983, and its latest figures do not suggest a far better picture this year.

The company reports a £1.23 million on turnover of £294,000 in the six months to September 1983, against a £1.79 million on turnover of £206,000 in the same period 1982.

Immediate Business Systems has been warning since the year that its new work is gloomy, but its shares have tumbled 20% to a new low of 10p. The stock was placed by May & Addenbrooke at 90p and been as high as 33p.

The company makes part of its computer billing systems for companies which allow its readers to produce an "immediate" bill. But there has been no immediate about the company's performance as a "delay in income". This has obviously emboldened the finances but Gordon Gifford, newly-appointed executive chairman of the group, says conversion rate. Last year claimed potential sales of £3 million, and £4 million of those turned into contracts. Revenue from these should begin to appear in the next half-year.

SOFTWARE FILE

Digital Research tunes up C guide

by George Black and Claire Gooding

GUIDELINES on the C language due within a fortnight herald the start of Digital Research's collaboration with AT&T on a Unix library.

The company is to produce quality assurance tests for an applications library running under Unix System V. AT&T has put its weight behind System V as the dominant strain of Unix by drastically reducing its price.

AT&T's Dan Langford says the library is expected to consist of mainly third-party applications and systems software written by AT&T and Digital Research. He stressed that the arrangement is non-exclusive and AT&T would encourage others to write applications for System V that would not be included in the library.

AT&T's stance is something of a slap in the face for Digital Research's old rival Microsoft, which

pinned its hat on Version V11 in the early days of the commercialisation of Unix. The Unix tide moved on leaving Microsoft to bring its Xenix product in line with System 111 and to integrate it with its single-user system MS-DOS.

The upgrade path from MS-DOS, which is used on the market-leading micro, the IBM-PC, to the multi-user Xenix has never been clear or simple. Microsoft will be pleased that IBM has plumped for System 111 on its PC under the label PC/IX, thus holding back the tide to System V.

But Digital Research has opted to back a later version of Unix which could well become the vehicle of future Unix business. "The System V market needs a focus," says Paul Bailey, vice-president of marketing for Digital Research. "The plan announced by AT&T shows it is committed to providing consistency. It has

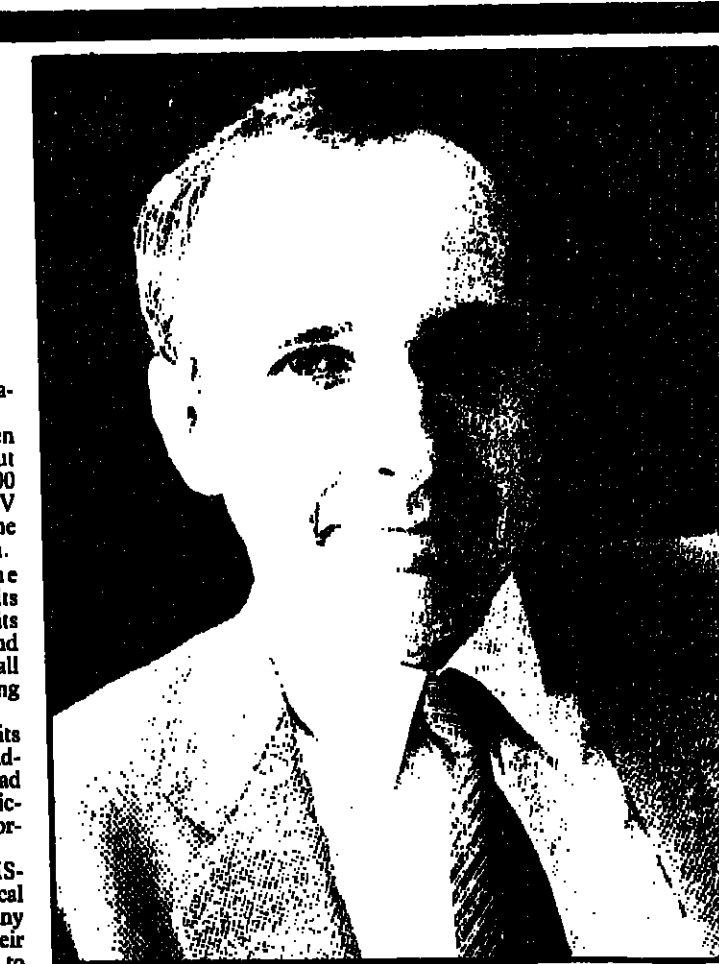
realised that Unix needs purification."

Digital Research has also been commissioned by Motorola to put its languages on to the MC68000 chip and by Intel to port System V to its 286 chip. Microsoft's scheme to do the job for Intel fell through.

For Digital Research, the System V implementation of its languages is the cornerstone of its strategy to provide languages and tools which are portable across all business environments, including the various forms of CP/M.

Microsoft may well be feeling its nose is out of joint, having considered that its IBM-PC triumph had put Digital out of the race. Predictably it is playing down the importance of System V.

"Unix isn't going to eclipse MS-DOS," says Microsoft technical manager Phil Buggins. "Many users have now got used to their independence and won't want to be networked."



BAILEY... "System V market needs a focus."

Midlands catch on to new techniques

by John Riley

NEW software techniques are catching on in the Midlands, according to a survey conducted by Birmingham software house Kalamazoo Business Systems.

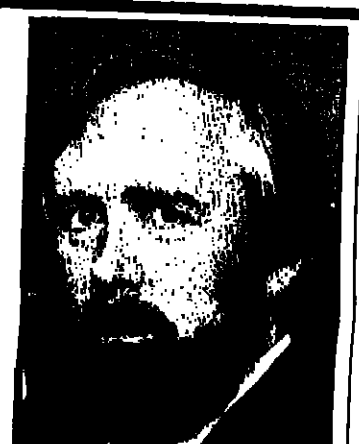
Kalamazoo canvassed 500 Midlands data processing managers last autumn to draw up a picture of systems and programming resources in the region because it considered that national surveys were biased to the south of England.

Doug Brown, Kalamazoo's manager for group development, who organised the survey, says the main finding was that just over half of the 125 respondents either use a plan to use structured programming techniques and that 40% of them use or plan to use new analysis and design techniques.

Nearly 60% of the DP managers who replied are finding it difficult to recruit staff for systems and programming maintenance. About the same number predict that there will be a shortage of general systems and programming skills in the short to medium term.

The 125 respondents used 25 different programming languages between them, with RPG, IBM's own small systems language, being the most significant generative language. Cobol was the most important language (used by 73%), followed by Basic and Assembler. "Survey of Midlands Data Processing Managers, Kalamazoo, Price £11.50. More information on 021-475 2191."

Scan Data bought in £2.2m deal



BALDWIN... "Right for all."

SCAN DATA International, the Texas Instruments systems, microcomputer distributor quoted on the Unlisted Securities Market, has been bought by Audiotronic Holdings, itself a public company and communications equipment supplier.

Martin Baldwin, chairman of the company, and Gartmore Investments, which account for 56% of Scan's equity between them, have accepted the £2.2 million share offer.

Audiotronic is putting up nine of its own shares for every two in Scan. Audiotronic is trading at 22p, so that value Scan shares at 99p. The bid is fully underwritten by cash, and Schroeder Wigg, Audiotronic's advisor, is offering shareholders a cash option of 21p.

Scan shares had a hard time in 1983, placed by Williams de Broc at 125p, they have been as high as 197p. But last month they had tumbled to a 75p low before being talked up 15% as speculation about a bid surfaced.

Baldwin concedes: "It would have taken some time for Scan to get its glamour back on the USM," says Audiotronic offers the company at faster growth than would have been possible over the long haul.

Baldwin says the decision to join up with Audiotronic has not been easy but he is confident that "it is

Takeover gives boost to Grand Met

by Philip Hunter

ALMARC Data Systems has risen again from receivership under the ownership of Southampton-based High Technology Electronics, (HTE), maker of circuit boards and other electronic components, after a takeover for an undisclosed cash sum.

Almarc was an OEM, importing 16-bit circuit boards from the US to build a micro called Spirit, and the significance of the move is that it gives HTE's parent company, the Grand Metropolitan Group, the capacity to build complete systems.

Grand Met is the UK's 10th largest company, and turned over almost £4 billion last financial year. HTE projects sales of £4 million for year ending September 1984, but managing director Tim Roberts says the Grand Met Group is making substantial investments, and HTE is drawing up a shopping list of computer companies to buy later this year.

HTE and its newly-acquired Almarc subsidiary will combine on systems manufacture, and already HTE has added the Arcnet networking capability to the 16-bit Intel 8086-based Spirit, which runs the Concurrent CP/M operating system.

Roberts promises to honour Almarc's maintenance contracts and says that people who have been trying in vain to buy Almarc kit will not have to wait much longer.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, is selected computer companies that reflect the state of the computer industry.

Previous published index 136.16										Index 134.28										Quoted									
Pence		London Right		Pence		B		US Stock		Pence		B		US Stock		Pence		B		US Stock									
1984		1983		1982		1981		1980		1979		1978		1977		1976		1975		1974									
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Aluminum (100)																													
85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8	85.5	85.8								
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Aluminum (100)																													

SOFTWARE Systems of Connecticut, author of the Wang-like word processing package for the IBM-PC Multimate, will set up in the UK next month. The two year old \$15 million firm will open a distribution and support centre in the London area.



POWELL . . . Says requests for help were fruitless.

Home suite suits go-it-alone PME

PME is still fulfilling its contractual obligations to TOM, despite a declaration last year by TOM president, Howard Bing, that TOM had unilaterally terminated the PME contract. PME is still sending regular reports and royalties to TOM, although joint man-

PMB went ahead and extended the software on its own account, adding a range of applications such as property management, travel agents' packages, property development accounting and govern-

In the long term, PME plans to transfer The Complete Account System to other manufacturers such as IBM.

ICL sells Lucre rights

In particular ICL bosses are

By November Cushman had to have both Lucre and Ordanier running under VME, Lucre, which began life in France, was a big hit and cost the Pentagon's small staff

Sensible differences end in row

original plan to sell only to end-users, and provide all support from its Pottery Bar headquarters. It is now looking to recruit a national network of dealers.



YOUNG . . . Sudden departure

President Pat O'Hanlon of the firm says that his company is working with Brian Young as a consultant to help

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THE ART OF TECHNOLOGY

Alfa Romeo 

All about protocols

Fred Jennings, of software and systems house Data Logic, has prepared a series of reports on networks - called Jensheets - and the eighth of these is on communications protocols. Due to space restrictions we are printing it in five instalments, of which this is the fourth.

THE following full-duplex protocols are the most well known:

■ Digital Equipment's Digital Data Communications Message Protocol (DDCMP) is the line protocol used for DECNET and is an unusual full-duplex protocol because it is control character oriented.

■ IBM's Synchronous Data Link Control (SDLC) is a bit-orientated protocol and has a similar frame format to HDLC. SDLC is the line protocol used for IBM's System Network Architecture (SNA).

■ the International Standard Organisation's (ISO) High-Level Data Link Control (HDLC) is a bit-orientated protocol and is directly equivalent to the American National Standards Institute's (ANSI) Advanced Data Communications Control Procedures (ADCCP). A subset of HDLC is used as the line protocol for CCITT X.25.

Full-duplex protocols require a full duplex point-to-point link. They all use a form of piggy-back operation for acknowledgements (ACKs), and ACKs to correctly received (incoming) data blocks are transmitted as a field in outgoing data blocks.

When there is no data to send, then acknowledgements are sent separately in non-data blocks. To avoid any ambiguity as to which data blocks are being acknow-

ledged, each transmitted data block has a send sequence count of three bits (counts 0-7). Some full-duplex protocols provide an extended send sequence count capability of seven bits (counts 0-127).

For each data block transmitted, the send sequence count is incremented. The count is circular and the next count after seven (or 127) is nought.

An acknowledgement consists of transmitting a receive sequence count which is the expected send sequence count of the next data block to be received. All data blocks received up to that number are acknowledged.

The frame structure for the High-Level Data Link Control (HDLC) protocol is specified in British Standard 5397 (ISO 3309, ECMA 40) documents as Table 1.

This is the LONG frame format and there is also a SHORT frame format which is identical except that it does not have an information field.

Error-checking on frames is achieved by the use of a frame-checking sequence (FCS) which is generated using the CCITT CRC-16 polynomial. The CCITT CRC-16 is a different polynomial to the IBM CRC-16 used in binary synchronous operation.

For HDLC operation, a cyclic redundancy check is a division performed by both the transmitting and receiving devices using the numeric binary value of the Address field, Control field and Information field (when present) as the dividend which is divided by a 16-bit constant (CCITT CRC-16).

The quotient is discarded and the remainder is used as the frame-checking sequence (FCS) is CRC character. It should now be realised that one of the advantages of HDLC is that all transmission (data and non-data) use frames and are therefore protected by a CRC check.

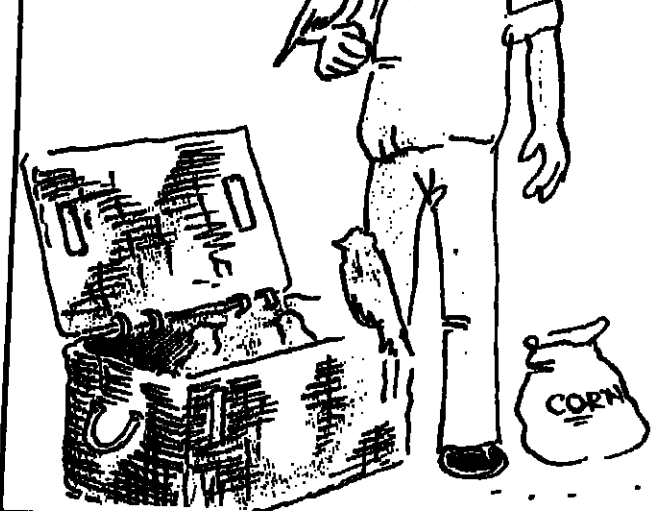
HDLC is a bit-orientated protocol and two bit patterns are used for basic transmission control purposes: a bit pattern of 01111110 is called a FLAG and is used to mark the beginning and end of each frame; a bit pattern of from seven to 15 consecutive ones is an ABORT function and is used by the transmitting device to abort a frame which it has started to transmit.

Transparency of the data in the address, control and information fields is achieved by a technique which is known as "zero bit insertion/deletion" (bit stuffing/unstuffing). Zero bit insertion is performed at the transmitting end and zero bit deletion is performed at the receiving end. The transmitting end inserts an extra nought into the transmit serial stream if it detects a six-bit serial pattern of 011111 because the next two serial bits could be 10 (a pseudo flag) or 11 (a pseudo abort function). The receiving end performs the reverse operation and deletes the final nought on any received serial pattern of 01111110.

At the transmitting end, genuine FLAG and ABORT bit patterns bypass the zero bit insertion/deletion and are therefore uniquely identified at the receiving end. Zero bit insertion/deletion is a hardware feature of an HDLC communications interface.

The bit-orientated HDLC/SDLC protocols and the character-orientated IBM BSC protocols differ in their hardware interface requirements as shown by Table 2.

Data General provides different hardware interfaces for HDLC and BSC operation but Hewlett-Packard has an interface capable of either operation. GTP Intelligent



"I told you to look at packet-switching not packet-carrying!"

Eight bits Flag	Eight bits Address	8/16 bits Control Information	16 bits FCS	Eight bits Flag
-----------------	--------------------	-------------------------------	-------------	-----------------

Character synchronisation	Leading FLAG	IBM BSC interface (using EBCDIC)
Text transparency	Bit insertion/deletion	Two SYN characters
CRC generation/checking	From leading FLAG to end of information field using CCITT CRC-16	DLE-STX, DLE-ETX etc.
Detection of end of frame/block	Ending FLAG, CRC is two previous characters 7-15 ones	From SOH or STX to ETB or ETX using IBM CRC-16
Abort frame		ETB or ETX, CRC is two following characters Not provided

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Abort frame		ETB or ETX, CRC is two following characters Not provided

■ Three types of stations: Primary stations, Secondary stations & Combined stations;

■ Three types of data flow: collection, data dissemination, both: where information frames flow from Secondary Primary only, from Primary Secondary only, or both, respectively;

■ Two types of transmission: point-to-point, normal and synchronous (to be explained);

■ Three types of configuration: Unbalanced (for Primary Secondary station), Symmetrical (for superimposed Primary Secondary station), and Balanced (for Combined stations).

■ Two sizes of modules: eight 128 for sequence counts.

These classes of procedure are summarised below.

Designation Class of procedure description

UAB Unbalanced operation, Asynchronous Response Mode, Module 8

UAB Unbalanced operation, Asynchronous Response Mode, Module 128

UNB Unbalanced operation, Normal Response Mode, Module 8

UNE Unbalanced operation, Normal Response Mode, Module 128

SAB Symmetrical operation, Asynchronous Response Mode, Module 8

SAE Symmetrical operation, Asynchronous Response Mode, Module 128

SNB Symmetrical operation, Normal Response Mode, Module 8

SNB Symmetrical operation, Normal Response Mode, Module 128

BAB Balanced operation, Asynchronous Response Mode, Module 8

BAE Balanced operation, Asynchronous Response Mode, Module 128

COMPANY PROFILE

Dedication is still the Wordplex way

Many think dedicated word processors are outdated. Wordplex, as Nuala Moran discovered, thinks not, despite introducing its new micro

WHEN Wordplex introduced its micro at the end of January it made it quite clear this did not mean it was abandoning word processors. There are probably some commentators who think it would be better off if it did.

The argument goes something like this: a word processor is merely a small computer, distinguished by the fact that its software suits it for one function. But users have no need to be restricted in this way.

They can buy an ordinary business micro, probably for slightly less than a word processor, which is entirely appropriate for word processing and lots of other things as well. Ergo, the end of dedicated word processors.

Wordplex does not see it in the same way. It says there is a world

to another. "And", says Winder, "you've got to remember that word processing is an expensive function. Having a purpose designed word processor means saving training time and it also means greater productivity."

Winder also disagrees with the pundits' view that it is only the large companies with centralised typing pools which can justify machines dedicated to doing word processing.

"Lots of small users such as solicitors are still going for word processors. This is because one of the main clerical tasks in a solicitor's office is producing documentation. So, they want to invest in the most efficient method."

A friendly operator interface has continued to distinguish word processors from micros. And because dedicated word processors are designed and built for continuous use it is possible to justify the extra cost. But Wordplex has realised it cannot depend on these features for its continued existence.

As a result it has designed an office automation strategy, which is where its business micro comes in. The micro is an IBM-compatible machine, made by Corona Data Systems. This is the first time Wordplex has marketed a machine not made at its own factories.

There are three micros on offer, a standard personal machine with 128 Kbytes of RAM; the XT which is internally identical to the personal computer, but has a 10Mbyte Winchester disc drive; and a transportable model with the same specification as the PC but with its screen shrunk to nine inches and weighing only 20lbs.

Wordplex's bid to become a supplier of complete systems for office automation will be rounded out with an additional offering, expected soon, of a file/resources network connector. System 8000 will allow micros, word processors and peripherals to be used as a distributed system and to connect to a local area network.

Winder emphasised that the micro is an executive too. It is not intended to replace the word processor. But in defining a

strategy for office automation, Wordplex also realised that it had to increase the functions of the word processor.

"With office automation secretaries don't just need word processors. You could argue that they also need telex, access to Prestel and other public databases, a personal computer for specific applications, a computer terminal for batch and interactive processing work, an electronic mail service and teletex," says Winder.

"What we have done is put all these functions on one unit. In other words what we are offering is a multifunction workstation. But it still has word processing as its main use."

One of the most obvious advantages of multi-functional word processors is that data can be transmitted in different forms. For

example, a letter typed in the usual business format can also be transmitted as a telex. And because the workstation operates as a telex machine, the telex room and equipment can be done away with.

Wordplex has taken this philosophy a stage further with the introduction last October of the Planet local area network, which is made by Racal. "This means that each word processor can have access to storage, but at the same time has the individual capacity to provide word processing, communications and other functions," explains Winder.

Another aspect of the Wordplex philosophy helps users to wear themselves gently off straight typewriters and into the office automation age. Multilink is a communications facility which links electronic typewriters to word processors. This means that up to 15 typewriters can be used to feed data into a central word processor where it can be edited

and stored. It also provides a message facility so that one typewriter can talk to another. A dedicated printer can be included in the network or information can be printed out via the typewriters.

The advantage for companies beginning to invest in office automation is that they can build up by replacing typewriters with workstations as and when the work load requires or funds are available," claims Winder.

In the same way, Wordplex thinks that most of the initial market for its micro will be with existing word processor customers building up automated offices.

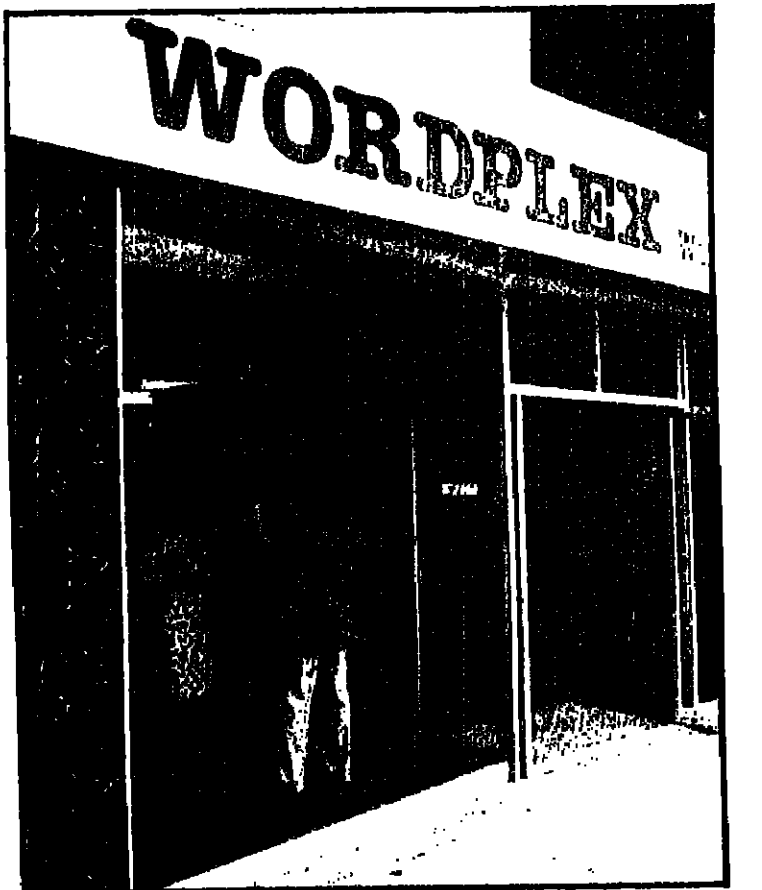
Does the dedicated word processor still have a place in this scheme of things? "I stand by the assertion that if the main task is word processing, the best product is a word processor", Winder asserts. He backs this up by the fact that 30% of Wordplex's 1983 turnover of £19.4 million was in sales of the 80-2, its bottom of the range word processor.

The 80-2 can be upgraded on site to the 80-3 and 90-4. The 80-3 has dual ground working through the Wordplex Gemini operating system. This means, for example, that word processing can carry on while the machine receives telexes. The 80-4 has built-in Winchester storage of 10 or 16 Mbytes and it can be upgraded to the Wordplex 80-4 cluster. In this configuration two additional workstations share its database.

Each model is based on the same VDU and keyboard, only the functions change.

Wordplex has over 5,700 units installed in the UK. And it also boasts some large clients such as ICI, Marks and Spencer, Reckitt and Colman, Unilever, British Steel and the National Westminster Bank.

Office automation is a growth market and word processor companies ought to know more about what goes on in offices than many companies now entering the market. The market may be demanding more than just word processing. Wordplex is aware of this and is trying to provide a business solution rather than just an efficient way of doing the typing.



Wordplex believes in dedicated word processing and has franchised 25-30 bureaux to prove it.

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PEOPLE



■ Nigel Banister has become managing director of NMW Computers, and David Fachiri, formerly marketing director, has succeeded Banister as marketing director.

■ Ray Kite has joined Data & Control Equipment of Aylesbury as international marketing executive. He has been a territory sales manager at Case and most recently worked in Dubai with Emirates Telecommunications Corporation.

■ Alex Reid has joined the board of Acorn Computer Group as a non-executive director. Until recently Dr Reid was a director of British Telecom. From 1981 to 1983, he was chief executive of British Telecom Spectrum, which includes BT, electronic mail, radio paging, and radio phone services. Previously he was director of Prestel and director of business systems.

■ Micro-Marketing (Electronics) has appointed John Howitt as sales and marketing co-ordinator. He joins from Semiconductor Specialists, where he was senior product manager.



■ General DataComm has appointed Joe Lloyd (above) former ICI senior communications expert, as sales and marketing director for the UK. He has also held senior positions with Ferranti, GTE and Rascal Milgo.



■ Hugh Parker, a former director of McKinsey and Co, has been appointed a non-executive director of DPCE Holdings, the independent computer maintenance company which went public in July 1983. Parker worked with McKinsey and Co for 32 years, 25 of them in the UK. He founded the company's UK operation, and from 1959 to 1974 was its managing director. He retired as a director of McKinsey and Co in 1983.



■ Brian Carr (left) and Barry Aiken (right) have been appointed directors of Memorex UK. Carr continues to have responsibility for all aspects of customer service and Aiken is responsible for personnel and training. Aiken joined Memorex in 1976 as personnel manager. Carr has been with Memorex for four years. The new directors join John Clarke, managing director, John Lambert, finance director, and Edward Picken as executive directors of Memorex UK.

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■ Keith Poole has joined Trident Computer Services as a recruitment consultant. He has 17 years of DI experience including 14 years with ICL.

■ John Smykala is now marketing executive at Signex. He comes from Nippon Electronic Company, where he worked for three years as product marketing manager.

■ Chris Whetherly has been promoted to sales manager within Trident Computer Services. He joined Trident six years ago.

■ Kevin Stigberg joins Peachtree Software International as account manager responsible for the Philips, Digital Equipment Corp and Scan Computers accounts. He has some 15 years' experience in the computer industry having joined Litton Industries as systems analyst in 1968. Previously he was at Geisco for three years.

■ John Farrand has been appointed president of Atari and president and chief operating officer of Atari Products Company. Other Atari Products Company appointments include: Donald Kingborough, executive vice-president of sales; David Ruckert, executive vice-president of marketing; Paul Malloy, executive vice-president of operations/product development; Marcellan E. Hoff, executive vice-president of research and product development; and Steve Calfee, vice-president of entertainment software. Charles Paul has been named president of Atari's coin-operated games unit.

■ Paradyne has appointed Sergio Rocco as international sales manager. He comes from Transac-Alcatel, where he was area manager, for the Mediterranean countries.

■ Keith Elliott joins Elan Computers from What Micro? magazine, and Steve Groves joins Mattell where he had responsibilities for after-sales service in Europe, the Middle East and Africa. Elliott takes on the job of commissioning and producing original software for the Elan Enterprise 64 and 128 home computers.

■ Tony Monk has been appointed to the new post of education director by the Circle group. Monk, previously a lecturer with Will-Denn, brings 10 years of CICS/VSE experience to his new role, which complements Circle's consultancy and software operations.

■ Masstor Systems International has appointed Martin Fitzgerald as technical development director for Europe. Before joining Masstor he was production manager for SIA Computer Services.

CONFERENCES

■ Roger Whitehead, chief consultant with Office Futures, is to present a revised version of Pergamon Intofech's tutorial "Managing the Automated Office." The new programme for the three-day event, in London from February 21-23 emphasises the importance of existing organisational structures and procedures in planning for the use of automated office systems. Fee is £425 + VAT. Further details from Pergamon (Intofech, Maldenhead (STD 0628) International +44 628) 39101.

■ Information Futures is running a two-day tutorial followed by a two-day international conference from February 21-24, at the Cafe

Royal, London. The tutorial will examine the key technical aspects of Unix of concern to experienced computing staff meeting Unix for the first time. It is designed for experienced systems and programming staff who have used other operating systems and who wish to gain a technical insight into Unix. Further information from Diana Pitcher, Information Futures 07535-58811.

■ Datasolve Education's ANS Colloquium programming workshop takes place at its London Education Centre from February 20 to February 24, and the cost is £790.

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■ Braegen International announces that Fred Heilbron is now managing director of its European, Middle Eastern and African operations. A Dutch citizen, Heilbron was previously marketing director of Ericsson European Centre.

■ Graham Warnock, ex-development manager for Space Time Systems has joined Synchro Systems of Newcastle-under-Lyme.

■ Metrolite Viewdata Systems of Ruislip has appointed Jack Straw as sales manager. He was previously a senior dealer sales executive with Torch.

■ Prime Computer (UK) Limited has appointed Shaun Eden as sales executive based at the new offices in Wilmshurst, Cheshire. He will be responsible for sales in the North West and Cheshire areas, and in parts of Merseyside. Previously he worked for three years for Rediffusion Computers as a territory manager.



■ Neville Davis (above) has been appointed managing director of Oceanic. He was previously financial director, having joined the company in 1979 from chartered accountants Deloitte Haskins & Sells.



■ J. (Ian) Robertson has been appointed deputy computer services manager at Guardian Royal Exchange Assurance. He joined GRE's data processing department in 1968 as a systems analyst, and was promoted to manager of GRE's general insurance systems in 1977.

■ John Coghlan has been appointed as sales manager for Fairchild Component Test Systems, based in Ferndown, Dorset. He joined the company in 1980 as an applications engineer, then moved into sales. Previously he was with ICL as an engineer.

■ Mideltron has appointed Derek Holloway as sales engineer with its Systems Division. He is in charge of Mideltron's North of England sales territory.

■ Hewlett-Packard has appointed Roger B. Wilson as director, corporate communications. He previously held positions as manager responsible for international marketing communications at Rank Xerox, and director of marketing communications for Europe, Africa and Middle East Division of Singer.

■ Sord is adding to its UK senior management team with the appointment of Ben Tanaka as director. He is Sord's international sales manager.

■ Tenhill Computer Systems, a West Yorkshire-based software house has strengthened its management team. John Edmondson, a former leasing company director joins as financial director; and Derek Irvine joins with 20 years' computer industry experience as sales and marketing director. Kim Whaley and Martin Straw, long-standing Tenhill employees, have been promoted to programming manager and support manager respectively.



■ Alan Norman, now with marketing communications department of Nixdorf Computer was previously with Myriad 1 Sales, where he co-ordinated marketing for the computer distribution of microcomputer systems throughout Europe.

DIARY

FEBRUARY 16
Fly-by-Wire/Light Flight Control Systems, R. G. Collinson, Marconi Avionics. Institute of Electrical and Electronics Engineers. Kings Arms Hotel, Christchurch, Dorset. 8.00.

Multi-Channel Hi-Fi Sound and the Digital Revolution. K. Barker, Sheffield University. Institute of Electrical and Electronics Engineers. VEB, Leeds Area Offices, Gelderd Road, Leeds. 6.30.

Access - Your Flexible Friend. D. Ashman, Access. BCS Guildford, Paddock Room, Green Man, Burgham, Guildford. 7.00.

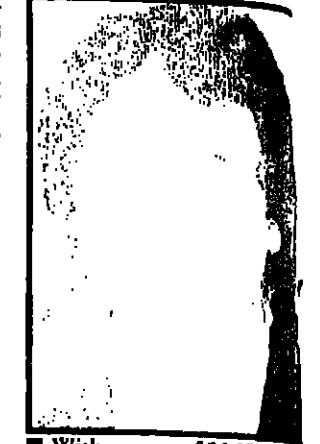
Computing in the Houses of Parliament. Richard Morgan. BCS London Central. Charing Hotel, London WC2. 6.00 for 6.30.

Microelectronics Assisting the Physically Handicapped. P. Greenwood, Bristol Polytechnic. BCS Oxford, Staff Coffee Lounge, Oxford Polytechnic. 7.45.

Computer Modelling of the Economy. Gerald Harbour, University College, Cardiff. BCS South Wales, joint meeting with Swords. Royal Hotel, Cardiff. 7.00.

Ada - Why or Why Not? T. A. D. White, RSRE. BCS West Herts, Aubrey Park Hotel, Redbourn. 8.00.

FEBRUARY 17
Annual dinner dance. BCS Belfast, Cladden Hotel, Belfast. 8.00 for 8.30.



■ With a score of 26,181 net rate characters per hour, a Wolstencroft (above) of Spectrum Data Services, Bradford, a winner of Rediffusion Computer 1983/84 UK operator of the year competition. The final result was computed after 100 characters had been deducted for each character keyed in incorrectly. Wolstencroft won a Rediffusion SP2 portable colour television. Second, Joyce Conner, also Spectrum Data Services (21.7), was presented with a Sharp cassette/radio; and third, Dorothy B. won a black and white portable television.

■ A software development house has been established at the Lark UK headquarters of Amtek Systems, under recently appointed product development manager Tricia Carter.

■ Baric Computing Services appointed Peter Kerry as sales manager. He joins from where his service included a part of secondment to ICL, Games and a Diamond Club award, the highest award for outstanding achievement.

■ Alan Norman, now with marketing communications department of Nixdorf Computer was previously with Myriad 1 Sales, where he co-ordinated marketing for the computer distribution of microcomputer systems throughout Europe.

■ Paul Sandham has joined Management Science America as systems consultant, specialising in accounts payable and purchase order control on UK accounts. Most recently he was systems designer at ICL, involved in order processing and accounting packages, and before that with Spence as sales executive in the glass business systems group. Mr. Van De Water also joins MSA as systems consultant, responsible for cash management support, accounts receivable. For the last years he has been at MW Kellogg (chemical engineers).

FEBRUARY 20
Computers in the Retail Shop. W. Anderson, John Smith Bookshops. BCS, Glasgow, Main Room, Staff Club, University of Strathclyde, Glasgow. 7.00.

IMS Update. CACI Systems Training Centre, Hants. £135. Details from Barnes (02514) 22133.

FEBRUARY 21
PABX - the Role of the Electronic Office. I. Milne, BCS Merseyside, Dept. of Engineering, Liverpool University. 6.00 for 6.30.

Some Practical Applications of Microcomputers. Dr. R. May and W. McCann. Institute of Electrical and Electronics Engineers. Fortdown Technical College, Fortdown, Co. Antrim. 7.30.

CICS Update. CACI Systems Training Centre, Hants. £135. Details from Barnes (02514) 22133.

The Police Computer System. Leicestershire. BCS Leicestershire. Supt. K. Tuckwood. Leicestershire Police, Leicestershire Police Station. 6.15.

SMART CARDS

Smart war hots up

The French lead the way but IBM is unlikely to sit back, says Jack Gee

FRANCE'S Bull and Philips Data Systems were the first to bring their smart cards to market almost three years ago. Now the Japanese are touting their own technology and IBM, taken somewhat aback by this onslaught of French technology in its own American backyard, is beginning to take notice.

And in Europe the two main rivals, Bull and Philips, have joined forces. After the race to develop and then manufacture the microprocessor-memory device, the two companies slugged it out on the export front. Convinced that the exporters will be stronger if they join forces, the French government put pressure on them to unite.

To consolidate their marketing thrust and to provide work for France's slowly developing microprocessor industry, Louis Mexandeau, the Minister of Posts and Telecommunications, and Laurent Fabius, Minister of Industry and Technology, have nudged Bull and Philips into a shotgun wedding.

Bull, which until a few months ago was losing as much money as IBM-France was making up in profits, has to listen attentively to the French government, its 52% stockholder. Philips Data Systems of France, a subsidiary of the powerful Dutch multinational, was, for a time, less happy about the match.

"What we want Bull and Philips to do," says Alain Turbat, the French Telecommunications Authority's director for its memory card project, "is not to form a single company or marketing unit, but to use the same chips on their cards. We don't want to set up any sort of monopoly. But a single chip system has enormous advantages."

The Bull system of a single chip offers better security because it's cheaper than Philip's twin chip technology, offers better security (it's harder to break into the memory) and performance is also enhanced, according to Turbat. "Although Philips uses separate chips for memory and microprocessor, they really agree with us," the French Telecom director adds.

But at Philips Data Systems, it was difficult for some time to find an enthusiastic echo. "The French government is subsidising its national component industry," says André-Jacques Selezneff, advanced projects manager. "So it's not surprising that they wanted both Bull and ourselves to adopt the same French chip."

That chip, now under development by Thomson's Eurotechnique division, will not be ready for shipment in quantity for another couple of years. "It will be more powerful than the smart card chips now in use," says French Telecom's Turbat.

Hervé Nora, French Telecom's whizz kid who has been masterminding the authority's telematic ventures to develop convergence of computer and telecommunications technologies, until his recent appointment as managing director of Bull's smart card division, shares the enthusiasm of his old colleague Turbat.

"Together, Bull and Philips can open up the market," says Nora. "If we have the same chip system



Hervé Nora, managing director of Bull's smart card division, with his product.

we will make ourselves just that bit more credible."

At Intelmatique, the marketing subsidiary of French Telecom, Roy Bright, the British managing director hired away from Prestel four years ago, concurs: "It will certainly make our efforts here to export the smart card more successful with the two companies having their heads together."

Philips felt aggrieved by all this pressure. Advanced projects manager Selezneff says it is natural for the French government to support Bull, since so much taxpayers' money is being pumped into the firm. He also declares that, in spite of this logical preference, the state treated Philips fairly in giving it access to the smart card trials now under way in Blois, Lyons and Caen alongside Bull.

However, it was certainly a disappointment for Philips in January when the joint committee composed of French Telecom and the state-managed banks announced that, following the trials in the provincial centres, the Bull card was being chosen for the principal applications in point of sale terminals, as a bank card and for

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SOFTWARE MONTH

Distributors have cashed in on 1980s micro boom

Micros and companies with micros have multiplied tenfold since the 1970s. Micro software distributors now abound

JUST as the computer market begins to show signs of maturity, and the new terminology begins to settle down into generally recognised meanings, along comes a new development to disturb matters once again. In this area, the microcomputer is much to blame. It's not that this newer technology is so vastly different from the old in its operational concept, it is simply that the volumes concerned make all the old mainframe rules redundant. For where there used to be one company with one mini- or mainframe computer, there are now 100 companies with a microcomputer; and where a company had one mainframe, it might now also have 100 micros.

The result is a vastly increased market for software from companies that generally understand less about computing than did the buyers of the 1970s, and are not willing to pay anything like the sums required for mainframe and minicomputer software. This, in turn, has led to one of the great boom areas of the early 1980s — the microcomputer software distributor.

Software distribution is a dynamic area — as evidenced by the growing number of distribution companies. Defining who is, and

"UK software has not yet reached a level of user-friendliness high enough for it to be sold unsupported"

who isn't, a true distributor is, however, very difficult. For example, the modern software supplier will often buy new products to complement his own. He will then sell his own packaged programs (which makes him a software supplier) and other companies' packaged programs (which makes him a software distributor-dealer) to dealers (which makes him a distributor) and to end users (which makes him a dealer).

One company that almost fits this role is Peachtree Software International, undoubtedly one of the

more dynamic of today's software companies — but note that Peachtree considers itself to be a software developer, and not a software distributor.

Richard Moore, Peachtree's UK general manager, believes that the software market would benefit from a greater number of specialist dealers concentrating expertise on selected applications.

"Some software," he explains, "such as Peachtree or Lotus 1-2-3 can be sold simply as a commodity, and in this area the distributors have an important role."

"More complicated packages

The volume of micros makes all the old mainframe rules redundant

like accountancy ledgers can be more successfully sold as part of a total support package. This is usually done through dealers who have chosen to specialise in supplying total business solutions to users."

This view is similar to that of Mike McDonald of The Bristol Software Factory. "The market in the UK," he claims, "is at an advanced stage of development with a high level of user awareness; that is, users expect and require support in terms of training and queries. The software itself has not yet reached a level of user-friendliness high enough for it to be sold unsupported."

"But the software distributor is merely acting as a middle man and will not be able to afford the technical support effort required. Software without support may be sold through a supermarket, but today's user would generally prefer to have the support of the local dealer."

In theory, we could say that the distributor provides software (and perhaps technical support) to a network of dealers, who in turn provide packaged solutions to the end user. But perhaps the only practical method is to look at the number of packages that the

dealer/distributor provides.

If he specialises in just a few packages then he is perhaps a dealer; if he has no particular specialisation and provides hundreds of different packages, then he is a software distributor. If this test were applied to the companies included in this month's survey, then there are many dealers that consider themselves distributors.

There is a name missing from this month's survey; a name that is almost inseparable from the term software distributor: Lifeboat Associates.

It could almost be said that Lifeboat, one of the giants in US software distribution, started the market in this country — and yet the Americans pulled out of the UK in the latter part of 1983. Does this mean that there is a vulnerability to distribution?

Most remaining distributors think not. For example, Barry Neil, the sales manager for MPI Ltd, gives several avoidable reasons for Lifeboat's UK failure: "... most notably a lack of fast response and a lack of technical support. Lifeboat in the UK was just a freight forwarding office for the US parent company. How can you expect to survive when every time a dealer wants a product it must be ordered specially from the States?"

This view is echoed almost perfectly by Geoff Lynch, the managing director of Xitan: "Lifeboat UK was always independent of Lifeboat USA, and it failed for three reasons: one — Lifeboat UK made little effort to obtain the mainstream dealer business; two — competitive UK distributors had begun to stock software packages and could therefore offer a much better delivery; and three — the UK operational manager left and was not replaced."

"No one would buy from Lifeboat," confirms Mike McDonald of The Bristol Software Factory, "because they couldn't support the

products that they were selling. And anyway, the same packages were available from UK representatives of the originating software house at better prices!"

Peter Hewitt, the marketing manager for Britain's world acclaimed software house Micro Focus, put the failure down to a lack of commitment from Lifeboat. "The key reason for having distributors in the software market," he explains, "is that they have the ability to cope with different machines and disc formats. Although Lifeboat had these facilities in the US they did not have that ability in this country — and that is why they failed. Other companies that have gone to the trouble to make this investment are more successful."

But we should not be surprised by the disappearance of Lifeboat. Importers rarely manage to stay at the forefront of their particular sciences. Dominic Dunlop, the technical manager of Unix specialist distributor Sphinx, sums



it up thus: "In the late 1970s, Lifeboat, entering what was then virgin territory, had the chance to sweep the board."

"Sadly, while its prices were attractive, its support (or lack of it) and down market image were not. What's more, of the dozens of packages in its catalogue, few would have passed the kind of rigorous quality check that is required to ensure that software sold without support really works, and really can be used by anyone who buys it."

"As so often happens, later entrants in the field look set to overtake the trail-blazers by recognising these mistakes and not making them again (where now is

Inasal, a pioneer in home computers? — what of Fairchild, inventor of the integrated circuit and still a major force, but by no means a front runner in components)."

"The new software distributor set out to provide the service which the products they handle — and the relative lack of experience of their customers — demands."

In short, Lifeboat UK failed because the market changed, but the company did not. It ended up as a distributor trying to fulfil the role of a dealer — but, in the final analysis, since the US parent failed to re-appoint an operational manager, Lifeboat was really scuttled before it had a chance to finally sink of its own accord.



MOORE: "US software can be sold simply as a commodity."

SOFTWARE MONTH

The industry is changing and a battle is on for lower margins which some distributors see as unmitigated disaster

Opinion is divided on the price-cut battle

IF one of Lifeboat's failings was to offer mainstream dealers sufficient margins, it begs the question that we are perhaps beginning to see the start of a software price war.

Since it is already happening in the hardware market, is it likely to repeat itself in the packaged software market? Many users look at the physical cost of a package (one disc, say £5), then look at the supplied cost (up to £1,000 plus) and feel that software is overpriced.

One thing is certain: the software market is changing, and will change even more rapidly during the next few years.

Even as this feature goes to press, a group of the major distributors are beginning to edge closer together. Does this mean the beginning of a Dallas oil-like software cartel?

Opinions on price wars are divided. "No," says Barry Neil of

the number of distributors around at present.

"The problem is not getting business, but getting qualified staff. I would see a head-hunting war as much likelier!"

But Ronald Young, managing director of Systematics International, has no such doubts. "We are seeing a software price war now," he claims. "The trend was set by Sir Clive Sinclair when he launched his new QL Microcomputer last month. Included in the price of £399 are four very powerful software products."

"Clearly, both Sinclair and Psion, the software house, are looking for low price high volume. "It is quite likely that other software houses and manufacturers will have to consider either reducing their prices and bundling with the hardware to compete with Sinclair, or await the outcome of the Sinclair venture."

"Sinclair is primarily selling at this price by direct mail order, and we may well see software houses changing their emphasis more so to direct mail order in order to compete."

Lynch sees a price war coming from a different area: "At the distribution level it is already happening. An interesting phenomenon," he believes, "is the distribution of margin between the dealer and the distributor. Typically, a distributor who gets 60% discount of the RRP (before production, import and duty costs) will be providing that product at 40% discount to the dealer. If one accepts the assumption that the 'hidden' costs are at least 5%, this means that the gross margins are 40% for the dealer, and 25% for the distributor."

"Recent moves have been seen to change this to 45% and 18.1% respectively — which is very unhealthy as it leads to the dealers giving away their margins. The main reasons for this are, firstly, a portion of the market is disappearing as hardware suppliers begin to take on software distribution (for example, Sanyo and ACT); secondly, there is an increasing number of other new entrants into the market (it would appear, for example, as if W. H. Smith now has ambitions in this direction); thirdly, another portion of the market is disappearing as software publishers, such as Ashton-Tate, start to sell direct; and finally, there is an increasing degree of competition and failures among

"Software is a totally man-time related product, and man-time costs have never decreased. The only opportunity for software price cutting will apply to ageing products (like, say, WordStar) where volume sales have already been obtained, the product is stable, well-supported and well-known, and both developer and software OEM have recouped the original investment and made a profit."

"The present profit margin for distributors," confirms Neil, "is too slim to make a price war anything but an unmitigated disaster area. Besides, the European micro software market is expanding fast enough to support several times

the dealer themselves."

Chris Base, national dealer manager of Midtron Distribution, believes that discounting exists, but says it is unhealthy to the industry. "The major problem in the market at the moment is dealers and retailers discounting products — the result of which is becoming only too apparent in the bankruptcy court."

"I feel that the recommended retail prices will remain about the same, and the discounters will gradually be forced out of the business — leaving the computer market to the more responsible companies."

"Support and stocks must be paid for. Without them the end user gets a cheap product, but one

with so little support that it may be useless."

This is a view supported by Chris Towers, joint managing director of Selven Systems, a

"The only opportunity for software price cutting will apply to ageing products where volume sales have already been obtained"

systems house specialising in CP/M-based commercial software and local area network hardware.

"Any software price war," he claims, "would only be a short-term expedient by distributors who are discounting their services to make a quick buck."

Towers sees the solution to the overall problem in educating the end user in understanding the true value of a standard software package. "At present," he claims, "some of them fail to understand why even minor modifications can cost as much if not more than the original cost of the package itself."

"Pre-sales support is another hidden cost. "Furthermore, discounting every part of a system is ruining the market for the genuine systems house who is providing a high standard of support."



McDONALD: "... Man-time costs have never decreased."

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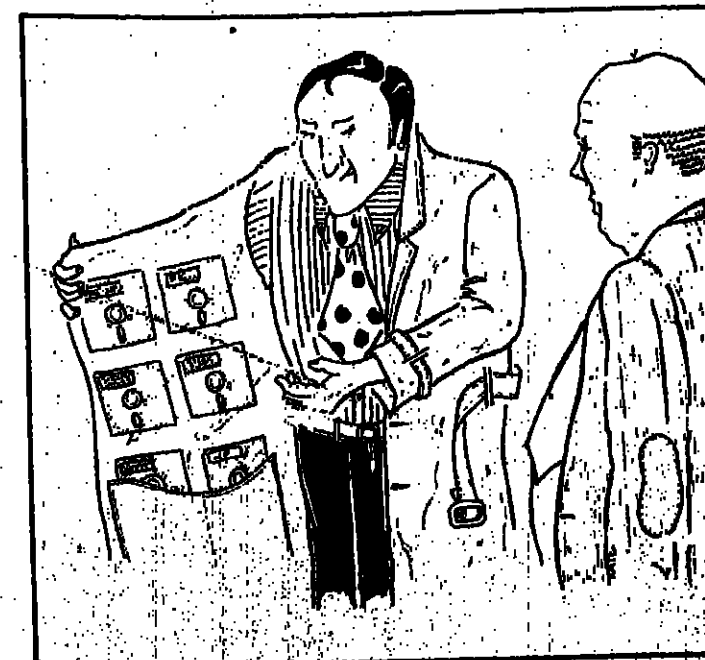
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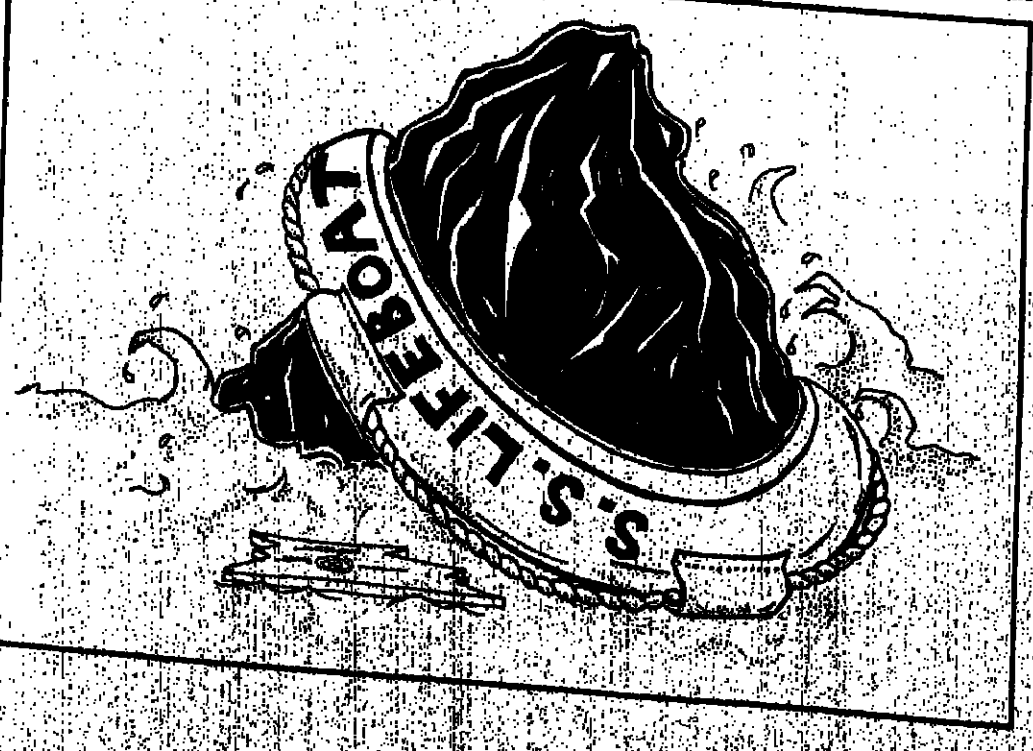
A dBASE II User Group has been formed. For further details contact User Group Secretariat Caroline Tanner on 0908 568866.



"How about a nice bit of software, guv'ner?"



DUNLOP: "... Lifeboat had the chance."



SOFTWARE MONTH

Our survey shows software distribution really means microcomputer software

Micros open up specialised market

SOFTWARE distributors are a recent phenomenon spawned by the rapid growth and dissemination of the microcomputer. So dynamic is this market (distributors come and go almost with the regularity of the high street newsagent's computer magazine) that it is worth reflecting on what the future might hold.

Some distributors (like Geoff Lynch of Xinn) feel that there are already too many distributors; others (like Barry Neil of MPI) feel that the market can support still more. But there is one characteristic of (almost) all the companies that took part in our survey of software distributors: software

required for the up-market hardware.

Even as it is, he continues: "I would like a hot dinner for every overseas user technical query I've received because the local dealer can't be bothered to care, or can't be bothered to know."

John O'Connell is managing director of Corporate Modelling Consultants, the company that develops, markets and supports the popular Final financial modelling package. His view is particularly relevant since Final is available on mainframes, minis and microcomputers.

A market for mainframe distributors? "I don't think so," he comments. "It's the volume market that attracts distributors, and there promises to be no explosive growth in the mainframe market sector in the foreseeable future."

"Another factor worth noting," he continues, "is the larger proportion of expert buyers in this market segment, and the longer decision cycle they involve" — none of which is attractive to the software distributor.

On a similar theme (the mass market), Dominic Dunlop, technical manager of Sphinx — specialist distributor of Unix — strikes a more optimistic note. "Mainframes, although a small market in themselves, can now run the Unix operating system popular on minicomputers and super-micros, making it easy for the distributor to offer the same package across a wider range of hardware — itself a particularly attractive proposition for the larger company with a wide existing range of hardware."

"What is often overlooked, however, is the need for communications software to unite such disparate systems. The traditional computer suppliers have solutions only for their own products — but the software distributor will in-

creasingly fill the gap by making modern networks of existing mixed-vendor hardware."

But, as perhaps the exception to prove the rule, Allied Aims is an existing large systems software distributor about to enter the software jungle. Says Mike Connolly, sales and marketing director: "It is debatable whether we should really call ourselves a software producer or software broker."

Allied Aims is effectively the commercial arm of the Allied Breweries Management Services Company.

The company has identified a number of software packages which it is either evaluating or about to market.

"Our philosophy as a selling company," explains Connolly, "will be to sell only the software

"The mini and mainframe market can support software distributors — but only those acting as super dealers"

that we have tried and tested ourselves.

The confusion between the terms "producer" and "broker" arises because Allied Aims will market both its own and third party software. "We are developing," he explains, "a minicomputer vehicle fleet package which can also be networked to remote locations from a central NCC and were subsequently given a sizeable grant through the Software Products Scheme."

One of Allied's third party products about to be adopted is "a relational database come artificial intelligence package, primarily aimed at mini and micro users to create applications quickly by the end user."

Research suggests a productivity improvement of between 300% and 500%, says Connolly. A positive view comes from Ron Young, chairman of Systematics International. "Many people," he claims, "believe that the micro has killed off the mini and mainframe

since it can offer the same power at a fraction of the cost. What they forget is that the cost of the hardware is not that critical.

Finally, we cannot ignore the precise views of Barry Neil. "The mini and mainframe market," he claims, "can support software distributors — but only those acting as super dealers. Companies that will act as distributors in this market will include those like Sci-con, CAP and Logica: that is, the large systems houses."

"There will be no room for the small software dealer acting as agent for such companies because of the long delay between initial interest and final purchase of large systems. Cash flow then becomes a major problem. It is only the larger companies that will be able to take the necessary long-term view."

It would seem, then, that there may be a limited market for large systems distribution, but mainly at the minicomputer rather than mainframe section of the market. In the meantime, it is the micro software market that provides the excitement, and it is worth asking where this is leading.

"Distribution," points out Chris Bass, Middletron's national dealer manager, "is a feature of the European market and does not occur in the US. However, US dealers tend to be very large and carry out many of the distribution functions (such as holding large stocks)."

"The average UK dealer cannot afford to hold large stocks and relies on the distributor to do so for him. His own concern is for instant delivery."

Young sees an impact being made by the new high-powered low-priced home market. He feels that today's distributor will be forced to examine the methods of organisations like Micronet 800 which distribute software via the telephone network direct to the computer.

Derek Budge, managing director of Metacomco, sees a great opportunity evolving throughout 1984 — and is ready to seize it. "The year 1984," he explains, "will see a major move in the direction of machines based on the Motorola 68000 family of microprocessors."

"Both Sinclair, with the new QL, and Apple, with the delayed Macintosh, will ensure an entirely new prominence to what has so far



YOUNG... "Cost of the hardware is not that critical."

been a somewhat specialised market. In addition to these scene-setters, it should not be forgotten that many of the major hardware manufacturers have at least a toe in this market, including IBM, Hewlett-Packard, Tandy and Hitachi. "This commitment to 16/32-bit processors will bring many opportunities to British software companies. In the past, companies like

"The distributor will continue to act as the perfect marketing vehicle for the small software author who hasn't the resources to market his own product"

Digital Research and Microsoft have tended to dominate the systems software market in the eight-bit and IBM-PC dominated 16-bit market (although Micro Focus has managed to keep the

flag flying a bit). "But the 16/32-bit market all intents and purposes has been ignored for the richer pickings where. The smaller software companies now have to or opportunity to attack this" because, unlike their larger counterparts, they can move quickly in response to new opportunities.

So long as there is a dynamic software market, there will be a dynamic distribution market.

But there is one problem: serious distributors must first overcome the increasing cost and problems concerned with after-sales support. MPI's sees it as primarily a dealer rather than distributor problem.

"Any product which is sold dealer should be supported by dealer. That is the basic dealer discount structure. If fundamental problems with products should be reflected in the distributor, if this chain of command is not properly supported then the distributor will have increasing support problems. The dealer will lose both discounts — and his customers."

Secretly, however, many distributors and dealers claim that day's end-user class is unreasonable. The problem is the microcomputer has more computing capacity from the main of the computer expert placed in the hands of the user. This leads to the syndrome called the "X syndrome": the user expects to pack the system, plug it in, and use it without any further ado.

Paul Rayner, the managing director of Great Northern Computer Services, tries to explain the situation. "Not every user needs after-sales support. But they don't need it, they should have to pay for it. But on the other hand, many people want and need considerable after-sales support. Few people would expect to be the time of their solicitation to change."

"The time of a good dealer distributor is just as valuable as should be paid in the same way. The good dealer/distributor therefore is going up to support the support — but the customer should expect to pay for it."

SOFTWARE MONTH

Where to find distributors

Software Month looks at 18 companies in a special survey of those who call themselves distributors

ONE of the main problems for any survey of software distributors is simply knowing where to start and where to stop. What, for example, is the difference between a dealer and a distributor? And what about software publishers, like Caxton and Dataview — should they be included? In the end we decided not to differentiate at all. We allowed the software supplier to decide for himself.

This approach has led to some obvious anomalies. Caxton decided that it should be included; Dataview decided that the survey title excluded it — which doesn't, of course, mean that there is necessarily much difference between the services of the two companies.

The Bristol Software Factory is another anomaly, for it supplies (at the moment, at least) only one product. If this were the traditional old mainframe market, it would simply be called a software house. But that's the joy and the frustration of the micro market: it has turned many of the old ideas and perceptions upside down!

In fact one could agree with Geoff Lynch, managing director of Xinn Ltd: "There are between five and 12 'independent' distributors. — ACT Pulsar; Encotel, Middletron; MPI; Pete & Pam; Soft Option; Softsel; Software Ltd; Tamaya; Telesystems; Trade-soft; Xitan."

"Our feeling is that this is probably about five too many!"

Allied Aims Ltd
107 Station St
Burton-on-Trent
Staffs DE14 1BZ
Tel: 0283 45320
Contact: M. D. Connolly
No of packs: 6
Best seller: Vehicle fleet cost control
Hardware: IBM: 308X, S3436, PC: CA: SYRA
Software: no specialisation
Established 1981
Turnover: £10,000,000

Caxton Software Ltd
10-14 Bedford Street
London
WC2R 9HE
01-379 6502 Telex: 27950 ref 398
No of packs: 4
Contact: Bob Huckle
Best seller: Cardbox
Hardware: CP/M and MS-DOS
Software: Productivity aids
Established 1981

Criterion Computers Ltd
12 George St
St Yarmouth NR31 1HR
0493 3160
Telex: 97329
No of packs: 30
Contact: G. Carter
Best seller: Plant and Tool Hire
Hardware: All CP/M and MS-DOS
Established 1979

Financial and Corporate Modelling Consultants Ltd
46 Chagford Street
London
NW1 6BB
Tel: 01-262 1021
Telex: 889111
Contact: J. A. O'Connell
No of packs: 6
Best seller: Finar
Hardware: no specialisation

Great Northern Computer Services Ltd
16 Town Street
Horsforth
Leeds
LS18 4RJ
Tel: 0532 589980
Telex: 357061
Contact: Paul Rayner
No of packs: 10
Hardware: CP/M, CP/M-86, MS-DOS
Software: no specialisation
Established 1979

Hardware: Unix
Software: Unixplex
Established: 1982

Selven Ltd
3-5 Southaven Street
Witham
Essex CM8 1BJ
Tel: 0376 519413
Contact: Chris Towers
No of packs: 9
Best seller: Paysense Payroll
Hardware: DMS Hinet
Software: Accsense Paysense
Established: 1979
Turnover: £750,000

Metacomco
115 Glenfome Rd
St Werburghs
Bristol BS2 9UY
Tel: 0272 550756
Telex: 44220
No of packs: 5
Contact: Derek Budge
Best seller: Cambridge Lisp 68000
Hardware: 68000 based
Software: Languages
Established: 1981
Turnover: £425,000

Microcomputer Products International
Central House
Cambridge Road
Barking, Essex IG11 8NT
Tel: 01-591 6511
Telex: 892395
Contact: Barry Neil
No of packs: 150
Best seller: BSTAM
Hardware: CP/M, CP/M-86, MS-DOS, PC-DOS-based micros
Software: no specialisation
Established: 1975
Turnover: £1,000,000

Middletron Ltd
Nottingham Rd
Belper, Derbyshire
Tel: 077382 6811
Telex: 377879
Contact: C. Base
No of packs: 200
Best seller: Wordstar
Hardware: HP, Corona, Morrow
Software: MicroPro, Ashton Tate, Digital Research
Established: 1972
Turnover: £12,000,000

Pete and Pam Computers
New Hall Hey Road
Rawtenstall
Rossendale, Lancs BB4 6JC
Tel: 0706 212321
Telex: 635740
Contact: David Emerson
No of packs: 2,500
Best seller: Multimate word processor (for the IBM PC)
Hardware: IBM PC, Apple, and printers in general
Software: All IBM and Apple compatible software
Established: 1980
Turnover: £12,000,000

Redwood
2 High Street
St Albans
Herts
Tel: 0727 38138
Contact: Tony Heywood
No of packs: 6
Best seller: Currently Uniplex word processing

Software: Unix
Software: Unixplex
Established: 1982

Sphinx Ltd
43-53 Moorbridge Road
London EC1
Tel: 0628 75343
Telex: 849842
Contact: Phil Martin
No of packs: 30
Best seller: XED word processor
Hardware: no specialisation
Software: Unix-based
Established: 1983

Systematics International Microsystems
Cleves House
Hamlet Road
Haverhill, Suffolk CB9 8EE
Tel: 0440 61121
Telex: 99433
Contact: Lesley Logden
No of packs: 10
Best seller: The Accounting Suite
Hardware: All leading stock microcomputers
Software: Accounts, stock control, and office admin

Sosoft Ltd
300 Ashley Road
Parkstone
Poole, Dorset
Tel: 0202 735656
Contact: Neil Hewitt
No of packs: 8
Best seller: Tomorrow's office
Hardware: MS-DOS Computers
Software: Application generators
Established: 1977
Turnover: £250,000

Triumph Adler (UK) Ltd
27 Goswell Road
London EC1
Tel: 01-250 1717
Telex: 837772
Contact: Ben Vashe
No of packs: 8
Best seller: Alpha Text word processor
Hardware: Micros and minis by Triumph Adler
Software: All business applications and vertical markets
Established: 1973

Xitan Ltd
Xitan House
27 Salisbury Road
Totton, Southampton SO3 4HX
Tel: 0703 871211
Telex: 477929
Contact: Roger Harris
No of packs: 250
Best seller: dBaseII and WordStar
Hardware: no specialisation
Software: no specialisation
Established: 1978
Turnover: £1,700,000

The Bristol Software Factory
Thornton House
Richmond Hill
Clifton, Bristol BS8 1AT
Tel: 0272 735022
Telex: 449477
Contact: Mike McDonald
No of packs: 1
Best seller: Silicon Office
Hardware: IBM, Digital, Sirius
Software: Silicon Office
Established: 1978
Turnover: £2,000,000

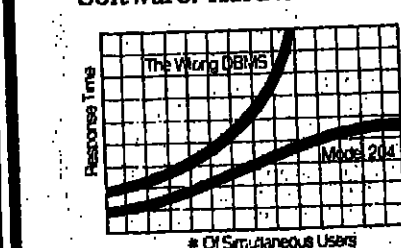
Trinity Resource Ltd
Painters Hall
9 Little Trinity Lane
London EC4V 2AD
Tel: 01-248 9212
Contact: Steve Rubin
No of packs: 12
Best seller: Holland Automation
Hardware: JCL personal computer
Software: Database
Established: 1983

Trinity Resource Ltd
Painters Hall
9 Little Trinity Lane
London EC4V 2AD
Tel: 01-248 9212
Contact: Steve Rubin
No of packs: 12
Best seller: Holland Automation
Hardware: JCL personal computer
Software: Database
Established: 1983

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TRADE FIGURES

The trade gap widens as UK export hopes are dashed

1983 was a black year for UK computer trade, with the total imbalance reaching a record figure. John Aczel reports

BRITAIN's trade deficit for computer systems has grown markedly in recent months, and the total imbalance is estimated to have reached a record figure for 1983.

The latest trade figures are for September and show a gap between exports and imports for complete systems of £11.4 million in that month. For the first nine

months of the year, the deficit was massive, amounting to £97 million in this field.

For central processing units (CPUs) the imbalance was even higher - £16.5 million in September, compared with £11.4 million three months earlier, while the cumulative figure has been much higher than predicted: £116 mil-

lion between January and September.

To some extent, it was expected that these sectors would show a deficit resulting from the buoyancy of the British market for computers. Imports have taken advantage of this high level of demand, but exports have not performed as well as expected.

Overall imports have remained high, despite the recent fall of sterling against other currencies. Foreign suppliers have been willing to reduce their prices in sterling terms, even if this has meant lower margins for their products, and competition has been quite fierce among most importers.

Total imports of CPUs reached a record figure of £51 million in September, representing an increase of 13% compared with three months ago. For the first nine months of 1983 the total amounted to over £380 million, which was considerably higher than in previous years.

In terms of volume, the increase in foreign deliveries has been even more pronounced. Over 110,000 CPUs entered the UK in September, which was about double the figure reported three months earlier. And the cumulative figure has gone up markedly, reaching 420,000 units.

Price-cutting has been widespread, and the average price of a processing unit dropped to about £450. This was considerably lower than at the beginning of the year, and further falls are expected in this field over the coming months.

Imports of processing units have come from a wide range of sources and a significant increase has been reported from Japan. Its sales amounted to £4.8 million, which was tenfold increase compared to three months earlier.

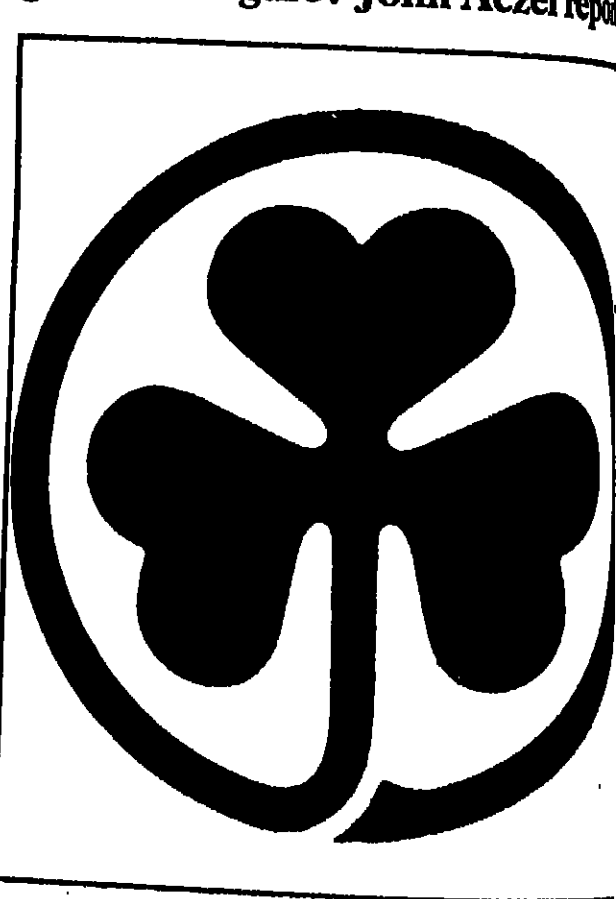
Deliveries from Ireland have also been higher and rose by 55% to £14 million. In contrast, sales from other European countries have been lower, particularly from France. Sales by West German suppliers have also gone down and amounted to only £4.3 million, as against over £8 million in June.

The US continued to be the main supplier of processing units, but its deliveries have been under some pressure. Thus, they fell by about 15% to £15 million in September while, by volume, the number of CPUs exported by the US declined even more.

In the case of complete systems, the trend in imports has been mixed and a slightly downward trend has been experienced in this period. Foreign deliveries of complete systems amounted to £14.5 million in September, against £16.4 million in June. The total for the first nine months, however, was well maintained: over £120 million between January and September.

It appears that there has been a trend towards importing processing units without input-output attachments in recent months. This may partly explain the fall in deliveries of complete systems, though this trend has varied considerably over the short-term.

For imports of complete systems, higher deliveries have



Deliveries of processing units from Ireland have also been higher and rose by 55% to £14 million.

been recorded from Ireland, with its sales rising by over 60% to £13.7 million in September from that source. Sales by the US, however, have been lower and dropped to £3.5 million, while a similar trend was also seen with regard to West Germany and Italy.

British exports of computers have shown an uncertain trend, and overall sales abroad were level pegging in value terms over the past few months.

UK exports of processing units amounted to £34.7 million in September, compared with £34 million three months earlier. In addition, the total for the first nine months was somewhat lower than expected: £267 million in this sector.

In terms of volume, there has been a useful increase in sales abroad, with exports of CPUs reaching over 40,000 units in September; this was about double the June figure, but most of the rise was due to higher exports of smaller types of equipment, particularly at the cheaper end of the micro market.

As a result, the average price of British exports for CPUs has been dropping and declined to only £830 per unit. This price was down by about 20% compared with the average at the beginning of 1983.

In Europe, British exports of

EXPERT SYSTEMS

Mentor leads the way

It's not only academics who are waking up to expert systems. Nicholas Benwell plots the commercial rise

IF the British Computer Society forms a specialist group in a computer topic, then it is surely fair to claim that there must be an academic interest in that topic. If in the same month the BCS holds a two-day management tutorial in that computing topic, and Logica offers a salary of up to £20K for people with experience in that subject, then there must be academic and commercial interest in it.

Expert systems is the name given to the new development. Expert systems work things out in much the same way as the reasoning in the above paragraph - they actually imitate the way people solve problems.

For many years, well-respected universities like Edinburgh and Stanford plugged away at artificial intelligence, widely regarded as the precursor to expert systems.

It is fair to say that this work aroused only minimal interest in Mammon until commercial systems such as Logica's Mentor were announced.

Mentor is an expert system kernel that is linked to Rapport, a relational database management system. As a result, it can access a large database in the course of its deductions, so providing a general purpose prototype that will give working demonstrations of part of a proposed expert system.

Mentor is rule-based, that is to say, the system follows a set of rules of the form "if conditions the actions". In order for it to manipulate facts with a view to reaching a goal or conclusion.

At the BCS tutorial, attended by over 70 people and chaired by no less a guru than Alex d'Agapeyeff, enthusiasm for the new faith was overwhelming.

"Not since the Russian Sputnik started the space race has anything had a similar effect on shaking the US into a major technology programme," claimed Bob Muller, who is a committee member of the BCS's specialist group. And US-UK computing links are closer than in almost any other trade.

The UK researchers, as usual, were one of the first on the scene with their artificial intelligence work, but the Lightbulb Report of 1972 ensured that SRC funding was speedily run down and those who could emigrate where they knew funding was to continue. Now expert systems are big business and most of the products are American or Japanese.

One organisation fully committed to expert systems is DEC. It has prototypes working in the fields of long range planning and scheduling production as well as various financial systems. It chooses which field to adopt by applying a set of criteria that includes: the knowledge involved largely empirical? Are people good at solving this sort of problem? Is it a topic where less than 100% success is acceptable?

Much of its work relates to subjects that cannot be solved algorithmically, and as that is the way that nearly all the world's systems operate at the moment, this leaves the way open to people like DEC to re-design its products accordingly.

D'Agapeyeff, in his introduction to the BCS meeting, referred to a DEC vice president who could get a modification to an expert system installed more or less overnight whereas a comparable Cobol program would require a month or two.

Bruce MacDonald from DEC

suggested in another paper that this view was a little optimistic. Major changes, or indeed mere modifications, could be readily achieved, although a bigish change to one of its systems, with some 4,000 rules, had taken nearly three months.

Nowadays, DEC feels confident enough to tackle several new such projects and MacDonald quoted the genesis of XSITE, an expert site planning system, with planned overheads of about four people working within a budget of £250,000 per year that will yield annual benefits for exceeding that outlay, if existing expert systems are anything to go by.

Site-planning is a topic where less than 100% success is inevitable and where the knowledge base is certain to be empirical, so it matches at least two of those criteria.

All DEC's expert systems resources are currently based in America but MacDonald is planning to introduce them to DEC Europe.

Not since the Russian Sputnik has anything had such an effect in shaking up US technology

SPL International is another software house deeply involved with expert systems and, at the BCS seminar, demonstrated Sage online from its offices at Abingdon. Sage has been sold to over 30 UK customers, ranging from the Ministry of Defence to ICI, for around £8,000 a time.

The demonstration consisted of a very simple model based on diagnosing a common disease from some simple symptoms. Five diseases were known to the system and, using some hypochondriacs from the audience, they showed convincingly how the expert system chooses between symptoms and grades of symptom.

To judge whether expert systems are readily modified, SPL attempted to add a sixth disease, scarlet fever, and its slightly different symptoms. Apart from some trivial problems with the editor, the company convinced a group of sceptics that using procedures akin to a BDMs enquiry language, it could install a substantial amendment like that in a matter of minutes. Further, those changes depended more on expert medical knowledge than on an expert computer freak's talents.

Max Bramer, from the Open University, summed up expert systems in his paper. He wrote: "A typical system will comprise a knowledge base of rules of the general form 'if X and Y and Z... then deduce A. With procedure, together with a control module, called and inference engine to perform inferences, make diagnoses, etc."

"The knowledge base varies from one domain to another, whereas the inference engine is (largely) domain-independent. Thus a system's rule-knowledge can be regarded as data manipulated by its inference engine."

Bramer systems are being used in the UK in disciplines other than medicine; we heard of their use in the metallurgy of pipework in chemical plants, and in Unilever's industrial research laboratories. Stuart Moralee, of Unilever, told us that the company has six separate expert systems up and

running, each with between 100 and 200 rules.

One of the examples involved the interpretation of infra-red detergent spectra - surely an expert's subject if ever there was one - which works using a pattern-matching technique.

It has cost the company over £40,000 so far but Moralee, like MacDonald, announced that this system had paid for itself many times over in its first year. One wonders why there is not a bigger response to expert systems from the UK data processing industry if they are so readily cost-effective?

Nicholas Benwell is a lecturer at Cranfield Institute of Technology.

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	September 1983	June 1983	January 1983
Exports of complete systems	£000	£000	£000
France	421	889	5,153
West Germany	957	1,390	6,136
Italy	147	247	1,087
Japan	306	140	1,307
US	150	93	1,646
Exports of processing units	£000	£000	£000
Australia	468	204	2,046
Belgium	1,897	1,649	16,718
Luxembourg	672	900	9,113
Denmark	4,808	4,767	39,701
France	5,987	6,529	58,941
Ireland	308	515	5,529
Italy	3,371	2,278	21,823
Netherlands	2,803	3,396	22,441
Norway	813	424	4,606
South Africa	903	1,006	6,211
Spain	1,991	1,676	10,203
Sweden	1,610	1,007	15,697
Switzerland	1,757	2,089	10,787
US	859	1,722	8,173
USSR	523	—	2,705

Table 1 - British exports of computer systems - by value

	September 1983	June 1983	January 1983
Exports of complete systems	No.	No.	No.
France	306	267	2,934
West Germany	5,199	482	7,233
Italy	42	411	1,080
Japan	23	20	154
US	39	29	560
Exports of processing units	No.	No.	No.
Australia	4,849	208	5,839
Belgium	1,381	2,960	16,660
Luxembourg	442	1,399	6,307
Denmark	1,993	1,895	35,045
France	15,245	2,616	79,947
Ireland	344	100	1,451
Italy	1,227	899	15,593
Netherlands	1,016	1,545	22,887
Norway	380	413	6,903
South Africa	1,880	630	7,312
Spain	7,050	1,409	16,902
Sweden	427	137	16,924
Switzerland	427	617	6,100
US	1,088	104	2,510
USSR	3	—	99

Table 2 - British exports of computer systems - by volume

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PROTOTYPING

How prototyping is making system design user-friendly

In the US users are being presented with system prototypes for evaluation. Guy Thompson reports

WHAT is prototyping? Another buzzword? A systems development method for the future? Or a step backwards to the old days of back to an envelope system design?

The prototyping method of systems development is a current US favourite, where its user friendliness and its speed at implementing systems has converted many.

It is a method that was conceived in the US in 1977 as a reaction against the development methods then in use. These can perhaps best be described as sequential in which a feasibility study is prepared, then, if feasible, a general design describing functions broadly in user terms, next based on that a technical design is prepared which leads to programming, testing, acceptance and finally implementation.

At each stage (in theory) agreements are reached, with amendments if necessary before going on to the next stage.

This approach, normally li-

the prototyping method, however, are the speed of development, and the high level of user involvement.

The fast development time is achieved mainly for two reasons: by use of modern software aids, application generators, report and screen formatters, high level languages etc; and by the elimination of time consuming corrections during the final stages of development.

The high level of user involvement comes because after each prototype is delivered to the users, the results of their evaluation (arrived at by a period of using the prototype) are incorporated into the next prototype.

So what are the stages of a prototyping development? Three fairly distinct phases have been identified.

Phase I, Analysis: This includes first the preliminary or feasibility study, and then (if feasible), an information analysis study to determine the functions and to analyse the data flows within the system.

One of the major activities in this phase is to eliminate these. This is usually achieved by an analysis of the operationally problematic elements with trials using full data loadings to isolate the problem areas, although these have often already been guessed at during Phase II.

That is the theory, insofar as a theory has yet been established, but how does it work out in practice?

Here are some observations made during the course of a typical application of the prototyping method. The development was of a mixed operational and informational system, based on a relational database containing 40 megabytes of data.

About 20 transaction screens were involved, all the transactions were online with some batch reporting and a fairly low level of end-user generated (online) inquiries. The elapsed time for development was about nine months and involved about three man years of effort. The hardware was DEC Vax using the Oracle relational DBMS software with its associated development aids including UFI, SQL, IAG and RPT.

From the system and database

designer point of view it was comforting to be able to test out some of the basic structures and design concepts without having to be committed at an early stage.

With the iterative approach all sorts of problems and faults that were discovered could be allowed for in the next iteration.

The worries surrounding user acceptance of the system were absent since in a sense the system was designed by the users and after each evaluation, given that the observed faults had been corrected, the system was accepted.

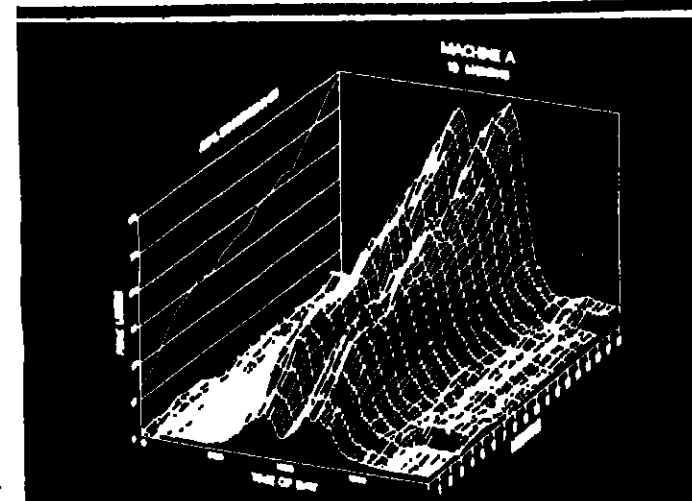
Since the user found it difficult to distinguish data errors from system faults it was necessary to use good quality "test" data, which was both accurate, realistic and representative.

There was a clear advantage for the users in that familiarisation and training could begin early - with the first prototype.

There was less chance of building unwanted elements into the system since any of the designers' faulty perceptions of what the users wanted were filtered out at an early stage.

The need for hardware early in the development was very apparent (early on compared with a sequential development), since system building began after a comparatively short analysis phase.

Guy Thompson is a member of the advisory staff of the Dutch Information Systems House PANDATA (member of the CAP-GEMINI-SOGETI group) and specialist in prototyping techniques.



Two main characteristics of the prototyping method are the speed of development and the very high level of user involvement

kened to the stages in building a house, has become accepted as the only sound method for installing a computer system. There are, however, problems which often manifest themselves.

For example the systems users - the people who will actually have to work with the system - are often unclear as to how, on the basis of the "functional design" the system will actually work and what it will do for them. But they must sign on the dotted line that they accept the design (usually rather grudgingly) before the technicians can start.

During the technical construction of the system there is little more than superficial contact between builders and users.

This gives rise to, at best a lack of involvement and at worst polarisation between user and builder, leading to problems with acceptance.

System faults and limitations are discovered only at the end of the line during acceptance trials where they are at their most expensive (in nervous energy as well as in time) to rectify. This is because the first real understanding that the users have of the system is when they see it actually functioning.

The prototyping method was an attempt to remove these sort of problems. As its name implies it is concerned with constructing a series of prototypes of the system, each prototype being a successively refined and extended version of the previous one, until a satisfactory system evolves.

The two main characteristics of

Phase II, Iterations: The first objective is to build a working prototype containing one or more of the major functions of the system.

It is generally felt that the first prototype should be ultra simple since it is primarily to test out basic assumptions; the general structure of the system, to check the development framework, to ensure the software aids work and the hardware configuration is sound, and to ensure the interaction between the development team and the users is harmonious.

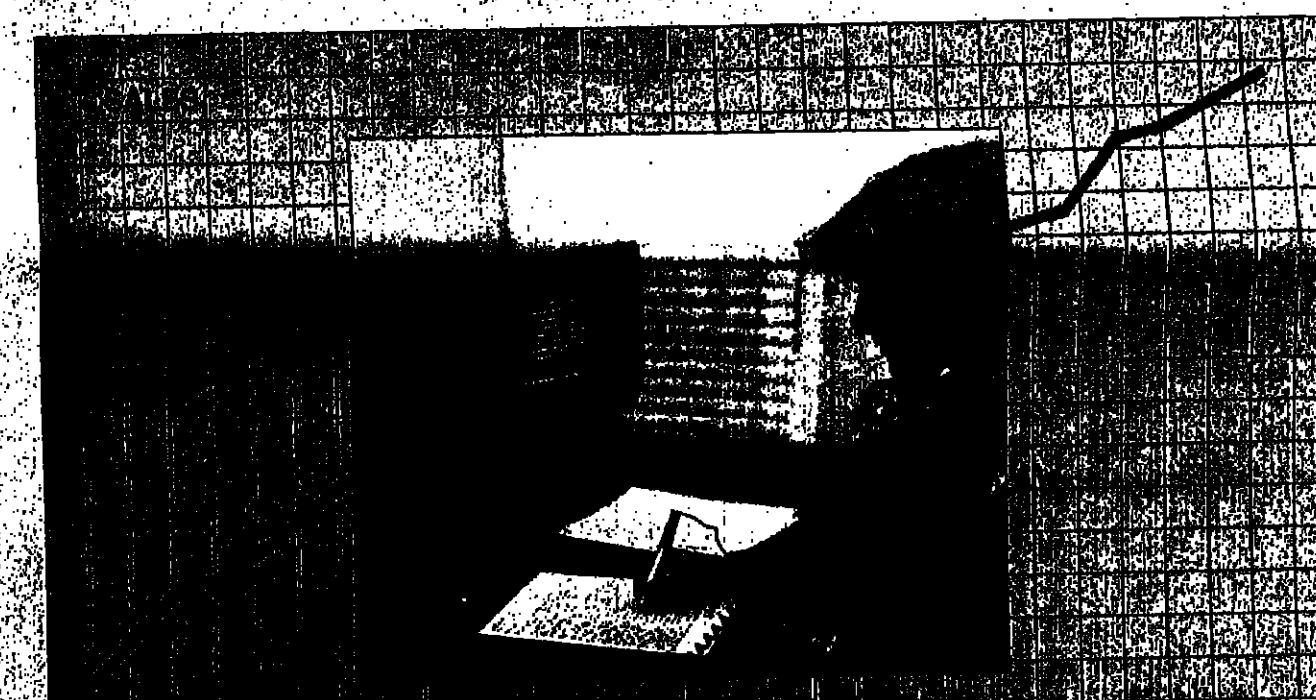
After the first prototype is built (usually in days rather than weeks or months) it is handed over to the user to gain familiarity with and evaluate.

Usually, the first prototype is about 50% correct with 25% excess and 25% shortfall. The necessary amendments are duly documented and carried forward for inclusion in the second prototype. This will include more system functions and more comprehensive data and again the building/evaluation cycle is repeated.

By this time the users are accustomed to the system, having seen it evolve under their own hands, and have reached a stage where the last prototype of the system is accepted as a functionally viable concern.

Phase III, Operational: The last stage in the development cycle is one of converting the functionally sound last prototype into an operational system. This stage is also known as the optimisation, or tuning, stage. Since the objec-

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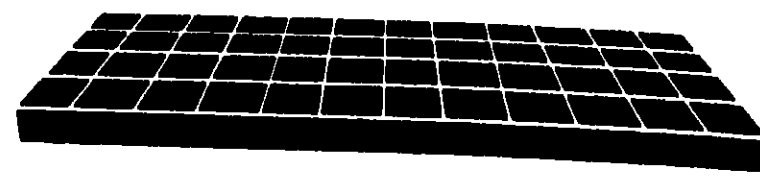
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- 8.30 COFFEE AND REGISTRATION
- 9.15 Mass Retailing of Business Micros — Michael Milman, managing director, Greens Business Systems (a subsidiary of Debenhams Ltd.)
- 9.55 How dealers should present themselves — Chuck Hansen, managing director, Computerland.
- 10.35 COFFEE
- 10.55 What Apple expects from their dealers; what Apple gives their dealers in return — Keith Hall, sales and marketing director, Apple Computers (UK).
- 11.55 Retailing through education and training — G. Summers, managing director, Planning Consultancy Ltd.
- 12.25 LUNCH

MARKETING TO THE PROFESSIONAL AND CORPORATE MARKET

- 2.00 Choosing Your Products — Jack Schofield, editor, Practical Computing.
- 2.40 Market products and sales channels — key considerations in the building of the dealer programme — John Crawford, vice president, world wide dealer programmes, Data General Corporation.
- 3.20 Personal computer dealer marketing in 1984 — Nigel Hensell-Thomas, personal computer dealer manager, IBM Ltd.
- 3.45 DEC's approach to the marketplace — Mike Harding, marketing specialist, Digital Equipment.
- 4.10 How to approach the corporate customer — Hal Hovland, joint managing director, Hovland Business Systems.
- 4.50 CLOSE.

WEDNESDAY, MARCH 14TH

SOFTWARE

- 8.30 COFFEE AND REGISTRATION
- 9.15 Vertical market software — coverage of vertical markets by specific packages varies greatly — some sectors are over-supplied and there are many open opportunities — Russ Nathan, managing director, Romtec.
- 9.55 Procurement — How you evaluate software from various sources — David Turley, director information systems division, Tamsys.
- 10.05 COFFEE
- 10.55 Marketing Software — The Business Market — Barry Neil, sales manager, Micro Computer Products International Ltd.
- The Games Market — Nick Alexander, managing director, Virgin Games.
- 11.35 Systems and applications software developments — David Fraser, general manager, Microsoft Ltd.
- 12.15 LUNCH — Guest speaker — John McNulty, McNulty's Interchange.

SYSTEMS INTEGRATORS AND OEMs

- 2.00 Communication is the key to office automation — Malcolm Relp, OEM marketing manager, Computer and Systems Engineering PLC.
- 2.40 Discs and Peripherals — Bob Britten, sales and operations manager, Kennedy International Inc.
- 3.20 Printer products and the markets — Alan Clemmensen, consultant, Mannesmann Tally.
- 4.00 Market trends in VDUs and VDU terminals — Harvey Ulljohn, managing director, Lear Siegler Data Products Ltd.
- 4.40 CLOSE.

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13 March

14 March

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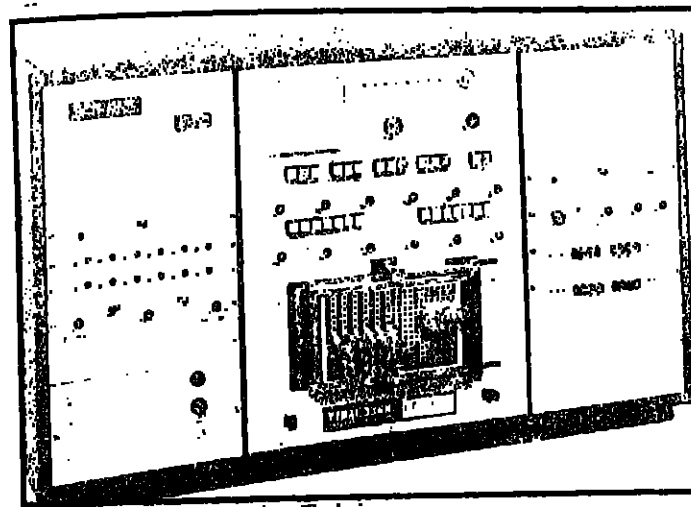
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PRODUCTS



The 336H from Computing Techniques.

Analogue/hybrid addition to Vidac

LATEST model in Computing Techniques' Vidac range, the 336H, is an analogue/hybrid computer, which can interface with general purpose digital computers both for plant or process control and for data transfer.

Leading features of the 336H include mode and computing control by TTL compatible logic signals; modular design, so that expansion units can be added for increased capability; manual control by self-illuminating push-button switches; and independent control of each integrator, permitting interactive solutions of boundary value problems and partial differential equations.

The standard model, available for £5,850, is capable of solving a sixth order differential equation. Computing Techniques has developed a range of non-linear modules to increase this capacity, such as diode limiters, multipliers, function generators and resolvers. In addition, a logic extension unit allows a wider range of logical and control functions to be performed. This unit has a separate

patch panel, linked to the 336H's main patching by 36-way trunk line.

The computer's FET amplifiers use specially selected components to give maximum immunity to drift. Mode selection and analogue system control are achieved by using high-speed FET switches, operated by digital logic.

The 336H is fitted throughout with 0.1% tolerance computing components, and may be operated manually or at fast repetitive rates with time constants down to 1ms. Because of its hybrid capability, the 336H can be linked to any general-purpose digital computer to provide simulation of a plant under direct digital control. This feature has been found to be of importance when education or operator training is carried out on a restricted budget, as realistic simulator instruction can be provided without the need to involve the plant itself.

Computing Techniques Mfg (CW), Brookers Road, Billingshurst, West Sussex RH14 9RZ. Tel: (040) 381 3171.

Automatic telex dial system

ATS Communications of Haywards Heath, Sussex, has signed a deal with Data Dynamics to distribute the ATS range of intelligent telex terminals. They are the ATS Vitel, a telex terminal, and the ATS KM700, a new telex management system.

Part of the deal is for Data Dynamics to do the marketing of the two systems, using a nationwide promotion plan. It expects to attract a large number of users, both large and small.

The KM700 is an automatic telex dialling system that leaves the operator free to carry on with other tasks while it gets on with transmitting the messages keyed into it, re-dialling if a number is engaged, and transmitting all night

long to coincide if necessary with overseas office hours.

The KM700 does its own billing and keeps a printed record of all transmissions, incoming messages, supervisory functions and any unsuccessful attempts to connect with the telex network.

ATS (CW), Bridge Road, Haywards Heath, Sussex RH16 1UB. Tel: (0444) 414911.

Three-in-one printer

VERSAPRINT 500, Lear Siegler's new printer series, offers colour dot addressable graphics, near letter quality (NLQ) and 180cps printing output, for under £1,400.

In near letter quality mode at 45cps and using a 14x18 character matrix, the output is almost indistinguishable from typewriter quality, says Lear Siegler, while in draft mode VersaPrint operates at 180cps and, using its microprocessor and bidirectional printing facilities, seeks out the fastest way of producing hard copy.

Lear Siegler Data Products (CW), Orchard House, Connaught Road, Brookwood, Surrey GU24 0AT. Tel: (048 67) 804667.

Filtering out interference

A FILTER plug which can be fitted to the computer supply cable in place of the standard 13-amp square pin plug, is introduced by Galatrek International. It is designed to protect micro and minicomputers, word processors and all voltage sensitive equipment from mains born interference.

The small unit will protect equipment from transients and spikes which can wipe out memory and corrupt data, says Galatrek. The filter plug also protects from momentary outages, mains RF interference and lightning disturbance. Price is £29.95.

Galatrek International (CW), Scotland Street, Llanrwst, Gwynedd, North Wales. Tel: (0492) 640311.

Hand computer has 3,100 bytes built-in

CLOCK and calendar functions, text-file editing and extended memory are among the built-in features of the HP-41CX, a handheld computer announced by Hewlett-Packard.

The new computer includes all the features of the HP-41CV, plus built-in time and extended functions/memory modules, a text-file editor, and 20 new commands. The HP-41CX has over 3,100 bytes of memory built-in.

A built-in time module enables the HP-41CX owner to use the calculator as a time-based system controller, an alarm clock, an appointment reminder, a calendar, a timer or an advanced stopwatch. In addition to the standard time module functions, the HP-41CX has five new time commands designed to improve alarm capabilities and time operations.

The built-in extended functions/memory module has 868

bytes of extended memory, extended memory-management functions, programmable versions of several HP-41 functions, and several register and flag manipulation functions.

Other features of the HP-41CX include an RPN (Reverse Polish Notation) operating system, in 24 Kbytes of ROM, that allows users to see intermediate results and recover from errors easily.

The alphanumeric keyboard is redefinable, so users can assign their most frequently used programs or functions to any key for quick access and execution. Keyboard overlays are also available for HP-41CX users who want to label redefined keys.

The recommended retail price is £229.71, exclusive of VAT.

Hewlett-Packard (CW), Eskdale Road, Wincoburn, Wokingham, Berkshire RG11 5DZ. Tel: (0734) 696622.



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Cullinet Software Ltd, Cullinet House, The Broadway, Stanmore, Middlesex HA7 4DU. Tel: 0547 3333. Telex: 895191 CULLUK G

PRODUCTS

Filter aims to reduce stress

POWER SCREEN is a new type of visual display unit anti-glare filter, introduced by Power Equipment, designed to go further than conventional filters in reducing word processing operator discomfort and fatigue.

In addition to eliminating screen glare and reflections, which can cause eyestrain, the new filter has an electrical earthing lead. This prevents the electric field, produced by the electrostatically charged screen, from affecting the operator, says Power Equipment.

With the filter in place, text on the VDU screen is easier to read, because most of the light seen by the operator is generated on the screen and not reflected. By eliminating reflections, contrast is improved and the operator sees a clearer, sharper image which reduces eyestrain.

The extra benefits of the earthing feature are based on recent health and safety research.

According to these studies eliminating the electric field will reduce skin and eye irritation and dizziness which are common complaints from operators during prolonged use of VDUs.

Available in a wide size range, the filter is a lightweight device which fits over VDU screens using

adhesive pads or magnetic strips. The unit consists of a matt black aluminium frame holding a black nylon mesh filter. Joined to the frame is an earthing lead which clips on to any earthed metal work.

Power Equipment (CW), Kingsbury Works, Kingsbury Road, London NW9 8UU. Tel: 01-205 0033.

The anti-glare filter from Power Equipment, designed to reduce operator discomfort.

Power Equipment (CW), Kingsbury Works, Kingsbury Road, London NW9 8UU. Tel: 01-205 0033.

Plessey firms up its image in the office

PLESSEY has strengthened its hand in the office systems marketplace with two new 16-bit workstations.

Plessey Office Systems has developed its own 16-bit business micro, based on the Intel 80186 processor, and is looking for distributors to sell the machine and write software for it.

The final end user price, including business software, will be about £2,000.

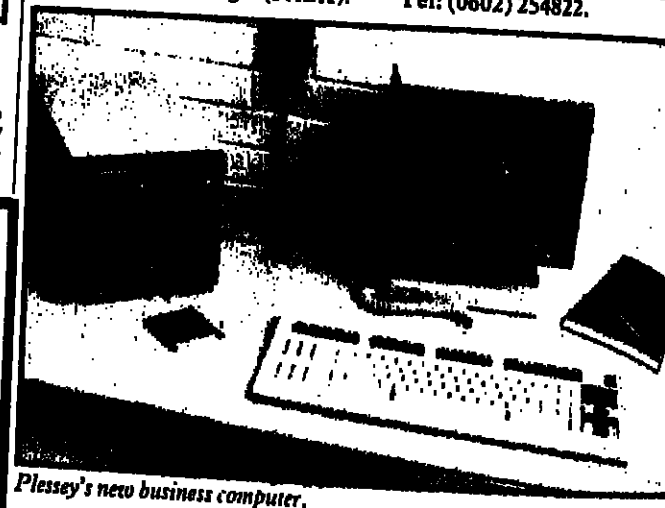
The company has also announced a multi-user workstation made by Convergent Technology in the US, and adapted to link up with Plessey's own private automatic branch exchanges (PABX).

The Convergent machine is on an OEM basis by several companies, including Bony and Prime, and is far from the industry standard off-the-shelf workstation.

It also offers local area networking, for sharing services and electronic mailboxes, which are linked up with a PABX, nearer to the idea of a system.

"We aim to offer a complete range of products for office market segments," says spokesman.

Plessey Office Systems (UK), Beeston, Nottingham NG9 1L. Tel: (0602) 254822.



Plessey's new business computer.

Sheet feeder clips on to the printer

COMPUTER users looking for accessories such as paper feeders and acoustic hoods can get a new range from ABS Data.

First there is what ABS claims to be the simplest and most reliable sheet feeder available. The ABS Paper Aide clips on to the printer in the same way as a tractor feed. The drive is taken directly from the printer platen gears, so no electrical connections are needed.

The feeder can handle sheets measuring up to 17.75 inches by 15. It can take 150 sheets and the stock can be replenished without interrupting printing. It uses the full platen width of the printer, so there is no need to adjust the margins on existing documents. Single envelopes or sheets can be fed in without removing the feeder.

The Paper Aide works with Qume Sprint, Diablo and AES

Daisy and Alphaprint printers. Costs £495. Special versions can be provided for other printers.

The second feeder from ABS is the dual-tray ABS Paper Manager Plus with its own memory. This can store addresses and print them on envelopes. The unit works with Qume Sprint and AES printers. Prices start at £1,095. The ABS Paper Manager, without the memory, starts at £795.

The new acoustic hoods are available for 13in and 26in printers. They accommodate the paper-feed devices.

The electrical components, including the cooling fan, are contained in a module which can be removed for quick servicing.

AES Data (CW), 170 Widdell Road, Sunbury-on-Thames, Middlesex TW16 7HH. Tel: (09327) 85631.

Mainframe to micro link

NORSK Data has introduced the ND-100CC communications controller, a standalone device that can link most mainframes, minis or micros.

A 16-bit minicomputer in its own right with up to four megabytes of MOS memory, the controller provides local offline data processing, word processing and disc storage facilities, and under software control allows up to 25 micros, VDUs and/or printers simultaneous access to one to four remote computers.

Prices for the basic unit start at £16,250 with up to 45 Mbytes of integral Winchester disc storage. A simple remote installation, with two screens, a multi-function printer and word processing software would cost about £23,000.

Norsk Data (CW), Strawberry Hill House, Bath Road, Newbury, Berkshire. Tel: (0345) 33344.

Editing terminals

A RANGE of editing terminals for information providers has been introduced by Bishopgate Terminals.

The BT1-14 basic editing terminal has a compact keyboard layout controlling all terminal functions, and non-interlaced display. Of special interest for editing purposes are its wrap-around feature, correcting the over-run, line/character delete, insert and shuffle, offline and online editing, and whole page store and transmission.

The model 14/40 has 40 pages of local memory held in RAM, so that frequently-used pages, or those carrying information which has to be copied down, can be viewed and edited after the terminal has been disconnected from the telephone line.

Bishopgate Terminals (CW), 12 Manor Way, Old Woking, Surrey GU24 0JA. Tel: (0484) 77441.

PRODUCTS

Fastest channel rate claim by Storage Tech

STORAGE Technology has announced the 4670, a 200 ips magnetic tape subsystem for IBM and IBM-compatible system users.

The 4670 is claimed to be the industry's first compact, high performance, stop/start tape subsystem offering an optional maximum data rate of three Mbytes per second – the fastest channel rate currently available on standard business computers.

Brian Hicks, marketing services manager, said: "Depending on the number of units in a configuration, the 4670 saves users between 25% and 47% in floor space and 50% in power and cooling requirements, compared with other similar speed subsystems."

"A properly configured 4670 with on-board buffer option, can sustain up to a 2.93 Mbyte per second data transfer rate to CPUs operating on a three Mbyte per second channel."

"The buffer is a 32 Kbyte random access memory capable of matching 3.0, 2.0 and 1.5 Mbytes per second channel speeds."

"The 4670, with the buffer, can be placed up to 400 feet from CPU, on the data streaming channel."

"Previously 200 ips drives were limited to 120 feet."

The 4670 tape subsystem is fully compatible with IBM 370, 303X, 4300, 308X and equivalent processors.

Storage Technology's buffer feature manages data between the controller and the tape drives,

freeing the channel to serve other devices.

By storing data temporarily at the buffer, the 4670 control unit is able to operate in block multiplexor mode, permitting concurrent tape operations to occur on the same channel.

And the buffer transfers data at full channel speeds – up to three Mbytes per second – when communications between the control unit and the central processing unit are re-established.

Consequently, the 4670 can nearly double data throughput on two Mbytes per second channels, and triple data throughput on three Mbytes per second channels, provided the appropriate control unit and channels are available, says Storage Technology.

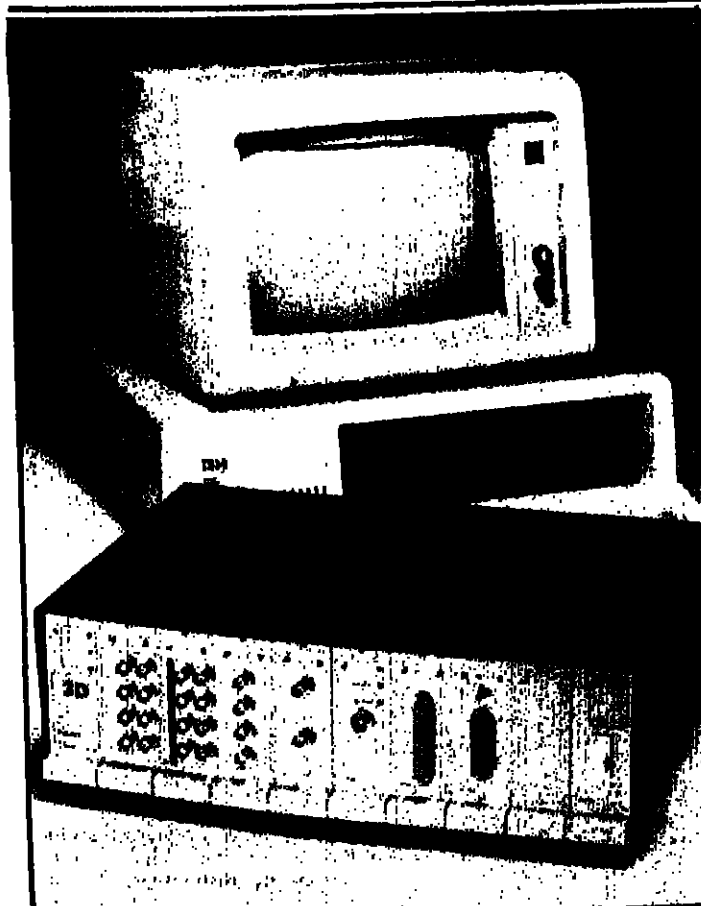
Each 4670 is equipped with its own diagnostic microcode housed on a floppy diskette.

The subsystem provides for complete user-initiated diagnostics and fault isolation of each unit to the printed circuit level, by specialists at the remote diagnostic centre.

Since these diagnostics are "in-line" tools, the remainder of the subsystem will continue to be available for data processing while fault isolation occurs transparently to other activity occurring on the subsystem.

The diagnosis is accomplished using standard telephone lines.

Storage Technology (CW), Churchston House, Portsmouth Road, Esher, Surrey. Tel: Esher 67041.



Interface system for the IBM Personal Computer.

Interfaces for IBM-PC

TWO interface systems for the IBM-PC Inlab and Thinklab, have been introduced by 3D Digital Design and Development.

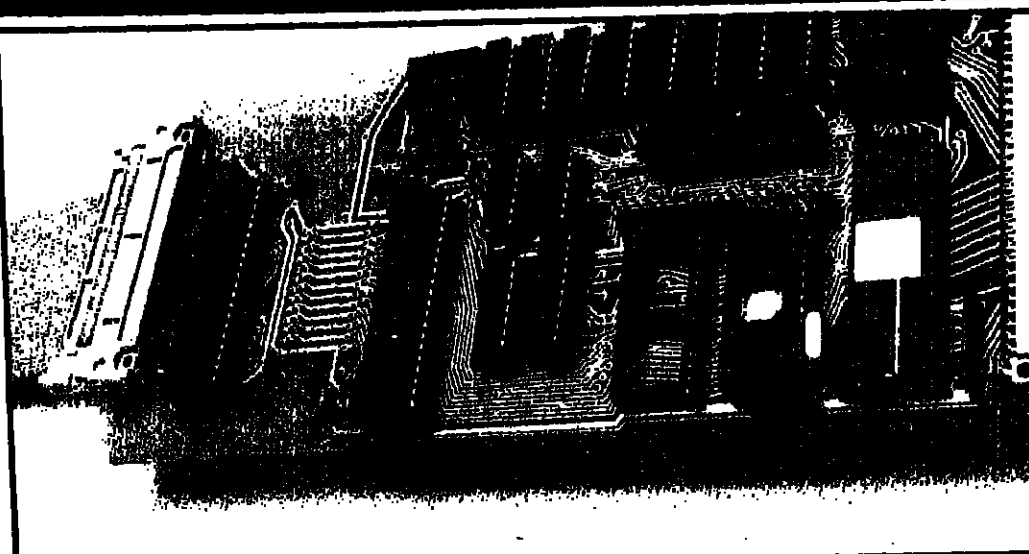
Both systems are modular in design allowing a number of extended Eurocard modules to be slotted into a 19in industrial rack. These modules include multi-channel analogue to digital converters, digital to analogue converters, instrumentation amplifier and intelligent stepper motor controllers.

Both interfaces allow up to 128 analogue inputs, 64 analogue outputs, 384 digital input lines, 128

on/off outputs etc. Both analogue inputs and outputs have 12-bit resolution. Digital input and output lines may be opto-isolated from the interface.

Thinklab has been designed specifically for remote data acquisition and control over a serial communication link such as the RS232C or equivalent. The Inlab, however, controller card may also be used by itself as a 24 bi-directional input/output device with status bit and interrupt facility.

3D Digital Design and Development (CW), 18/19 Warren Street, London W1P 5DB. Tel: 01-387 7385.



The first single board 6809 second processor for the BBC Micro.

Second processor for BBC micro

CAMBRIDGE Microprocessor Systems has introduced the first single board 6809 second processor for the BBC micro.

Aimed at the professional market, the board enables the BBC micro to be used for industrial development by the engineer wishing to develop his own hardware. With the range of cross assemblers available the system can be used to

develop software for different microprocessors, making it useful as a teaching aid in technical colleges and universities, says Cambridge Microprocessor Systems.

A feature of the second processor card is that it sits inside the BBC machine, fixing under the lid and connecting via a short cable to the tube interface. But should expansion of the 6809 bus interface

be required, the card can be supplied with a longer cable so that it can be plugged into a Eurorack with power supply and backplane. This offers the user direct access to a variety of Acorn bus compatible interface cards.

Cambridge Microprocessor Systems (CW), 11 St Margarets Road, Gilton, Cambridge CB3 0LT. Tel: (0223) 276791.

Prestel interface for the Krypton

A PRESTEL interface package, now available from Transtec for the Krypton series of microcomputers known as Siphon, has been developed by AND Software.

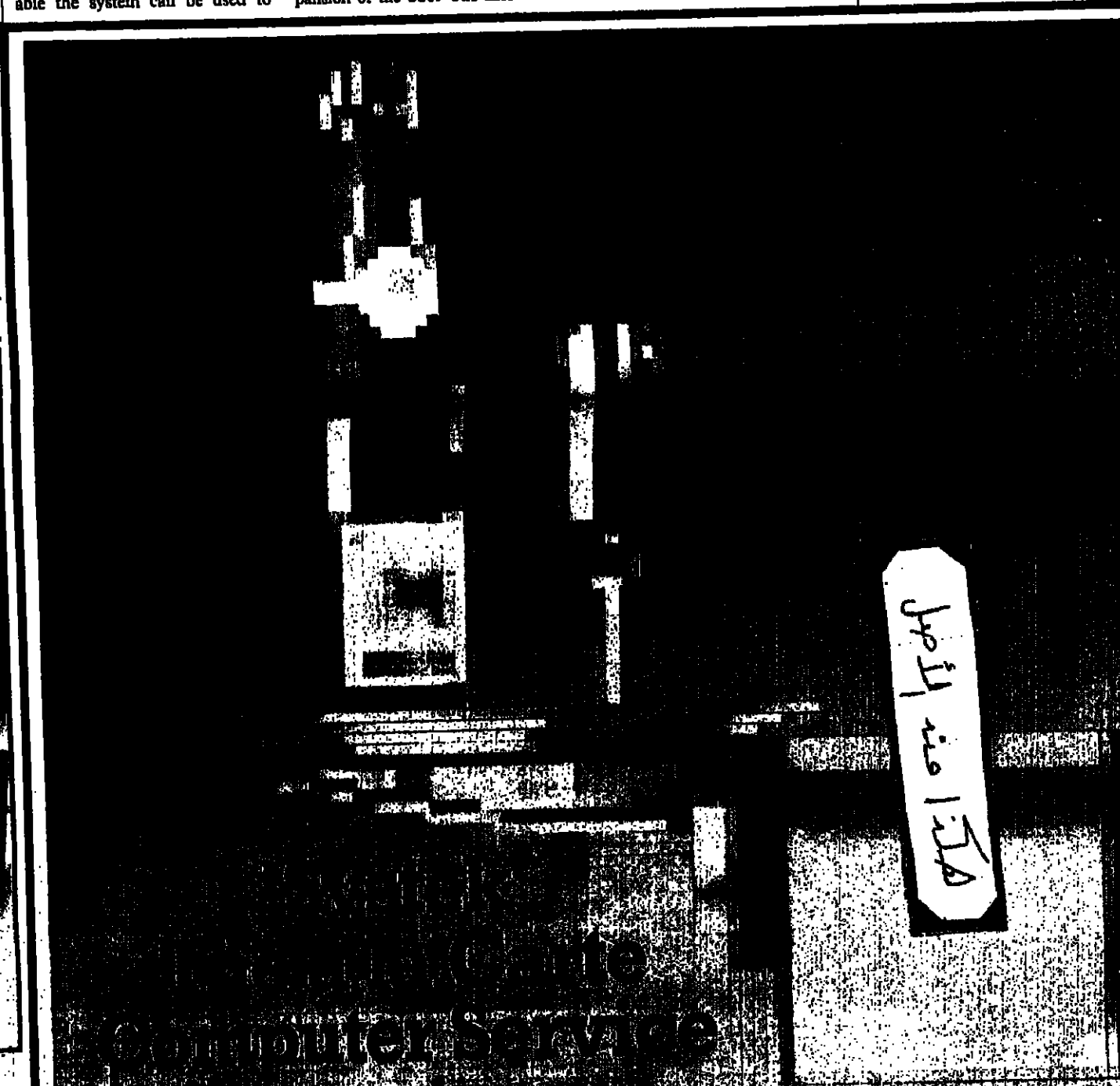
No additional hardware is required with the Siphon package. The user plugs a Prestel modem into the existing serial port provided as standard on Transtec's Krypton series.

Features of the package include display, printing, store and retrieve.

It has Telesoftware download capability, which can allow users direct access to application packages. In co-operation with the CP/M users group, Transtec is making a range of CP/M programs and utilities available through the Micronet database.

There is also an online directory display so that disc files can be located quickly.

Transtec (CW). Tel: 01-247 1327.



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PROGRAMME

1.30 The Alvey Software Engineering Programme. DAVID TALBOT.
2.00 Registered Project Support Environment. DR JOHN MADDEN/UKEN
JACKSON.
2.45
3.45
4.45
5.30 Refreshments. DR BRYN LUDWIG.
6.30 Coffee break.

Topics include:

1. The Alvey Software Engineering Programme
2. Registered Project Support Environment
3. Refreshments
4. Coffee break

Further details can be obtained from:
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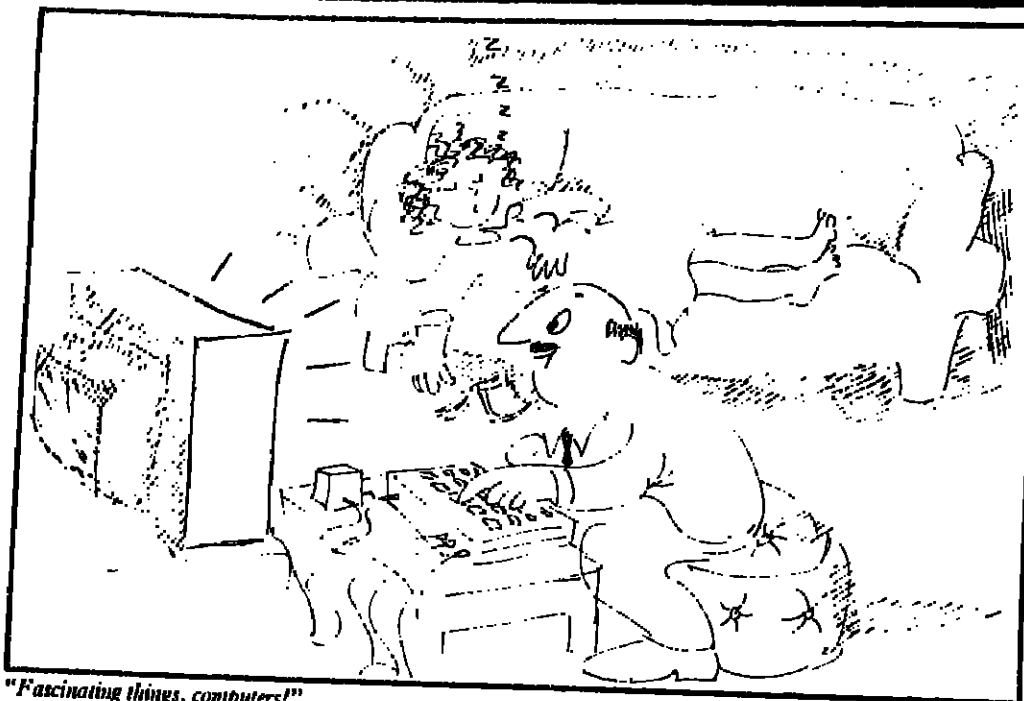
Nice text, shame about the pictures

The Micro Maze: A Guide to Personal Computing. Wynford James. Micro Press, Tunbridge Wells. £5.95

YET another introduction to microcomputers has hit the market in the shape of *The Micro Maze: A Guide to Personal Computing*, from former mathematics teacher and now ICL technical author, Wynford James.

Like the others, it has the obligatory potted history of computing, the usual introduction to binary arithmetic and the internal workings of the machine, chapters on programming and peripherals and a guide to choosing a computer, including brief reviews of some popular models.

The book has little chance of winning attention on bookshops' shelves alongside other, flashier offerings covering exactly the same ground. The few photographs are uninspired and have not reproduced very well, leaving the visual



"Fascinating things, computers!"

relief largely to a handful of indifferent cartoons.

This is a great pity, because the text is excellent. Even when describing how a computer works, the author resists the temptation to get too bogged down in technical language. Throughout the book he makes simple but extremely effective

comparisons between the way computers work and the way humans behave.

The result is a very clear picture of what microcomputers, peripherals and programming are all about, even for the beginner.

The book is aimed at home, business and education users but concentrates on the very bottom of

the market, talking of microcomputers in terms of television sets, cassette recorders and Basic. In fact, the author suggests the Logo teaching language will be come the most popular language after Basic. This is misleading for potential business microcomputer users.

John Kavanagh

Robots as MPs? Back to reality

Reinventing Man: The Robot Becomes Reality. Igor Aleksander and Piers Burnett. Kogan Page, London. £9.95

ANYONE worried about questions like, "Should a robot be allowed to stand for Parliament?" and "Would you let your daughter marry one?" will be reassured by *Reinventing Man*, a look at the reality of robots by researcher Igor Aleksander and writer Piers Burnett.

Most of the book is an excellent description of today's robots, how they work and their use in industry. It shows that robots still have a very long way to go before they come anywhere near competing with humans.

But the book also goes much deeper, back to the roots of robotics both in science fiction and in the ideas of Norbert Wiener, a founding father of modern robotics. It suggests that the early success of some of his ideas led to the development of today's robots, which imitate human actions on assembly lines.

But, it argues, this limited, mass meant Wiener's more important ideas were ignored - a research into those ideas could bring robots which imitate the way human minds work.

That involves recognising working from patterns of data rather than following simple program instructions or rules, as those governing chess games.

The last third of the book goes into a pattern recognition project worked on at several UK universities by Igor Aleksander and others to develop this idea.

After the readable and down-to-earth description of robots and artificial intelligence this section comes too much of an academic paper - and, one suspects, a plea for further research funding. Certainly the authors' claim to writing for the layman wears thin here.

For all that, the book's 30 pages provides an interesting comparison between the practical aspects of robots and man's aspirations for them.

John Kavanagh

Putting the computer firmly in perspective

Computer Power and Human Reason, by Joseph Weizenbaum. Penguin Books (Pelican), £2.95

WEIZENBAUM states in his introduction that this book is not primarily about computers. Computer science (of which he is a professor at the Massachusetts Institute of Technology) is used as an example to illustrate his main concern: the reluctance of scientists to accept responsibility for the potentially disastrous effect their work can have on the world.

As he admits, this is not an original view, but it is certainly worth repeating, and Weizenbaum argues his case thoroughly and convincingly. This, however, is only in the last chapter of the book. The preceding nine chapters explain computers and their limitations.

The author is particularly scathing about the wilder claims of the artificial intelligence, especially the notion that man can validly be regarded as nothing more than an

information processor, and that, in theory, be precisely emulated by a computer.

His concern is expressed in his conclusion that "since we do not now have any ways of making computers wise, we ought not to give computers tasks that demand wisdom".

In his desire to preserve academic integrity, Weizenbaum pounds his arguments with a degree of detail which lay readers may find excessive, though the result is to make his case luminously clear and watertight.

The book was first published in 1976, and while technological developments have in no way invalidated it, the claims for artificial intelligence have so some extent been moderated in the interval.

This, however, is a minor detail. *Computer Power and Human Reason* is a brave and thought-provoking book, and its central theme is of the greatest importance to scientist and layman alike.

Hugh Busby

Is C really worth it?

Learning to Program in C. Thomas Plum, Prentice Hall, Englewood Cliffs, New Jersey 07632.

THE Unix wagon marches on, carrying along the programming language C. Unix, I grant, is here to stay, but is C the best programming language for writing business applications?

Or is C just a piece of trendy ephemera that is going to fall by the wayside of languages like RM Cobol?

Certainly, the language has its critics, who argue that it is too academic and hard to maintain. Use instead a language like RM Cobol, they exhort, which is far more portable among programmers, if not among machines.

Readers are left to judge these issues for themselves in Thomas Plum's *Learning to Program in C*. They are given a pretty exhaustive technical treatment with plenty of examples of C programs, but the book lacks a wider perspective.

The question, "Why write in C?" is left largely unanswered. The author does go on about portability and efficiency: it is true, but fails to offset this with the difficulties of writing good code in C and then maintaining it. Plum describes his book as a

tutorial rather than a manual. In this he can be credited with some success, but he has not entirely managed to escape the manual mentality that bewitches writers of books about computing.

The prose is of fair quality, but I feel that several times the author has not quite risen to the occasion, and fails to think clearly enough. As a result the reader is sometimes left to unravel the detail.

The text is split clearly and sensibly into chapters on data, operators, statements, functions, pointers and structures. There is also a chapter on software development, which is useful but could have been developed further.

An important aspect of C is the use of pointers. On this matter, Plum does well, and draws our attention to the key fact that the value of an unassigned array in C is equal to the address of the first element of the array.

A pointer variable holds only an address, and C allows integers to be added to pointers, with automatic scaling of the answer by the number of bytes in the variable. This technique allows machine-independent address arithmetic to be performed.

Philip Hunter

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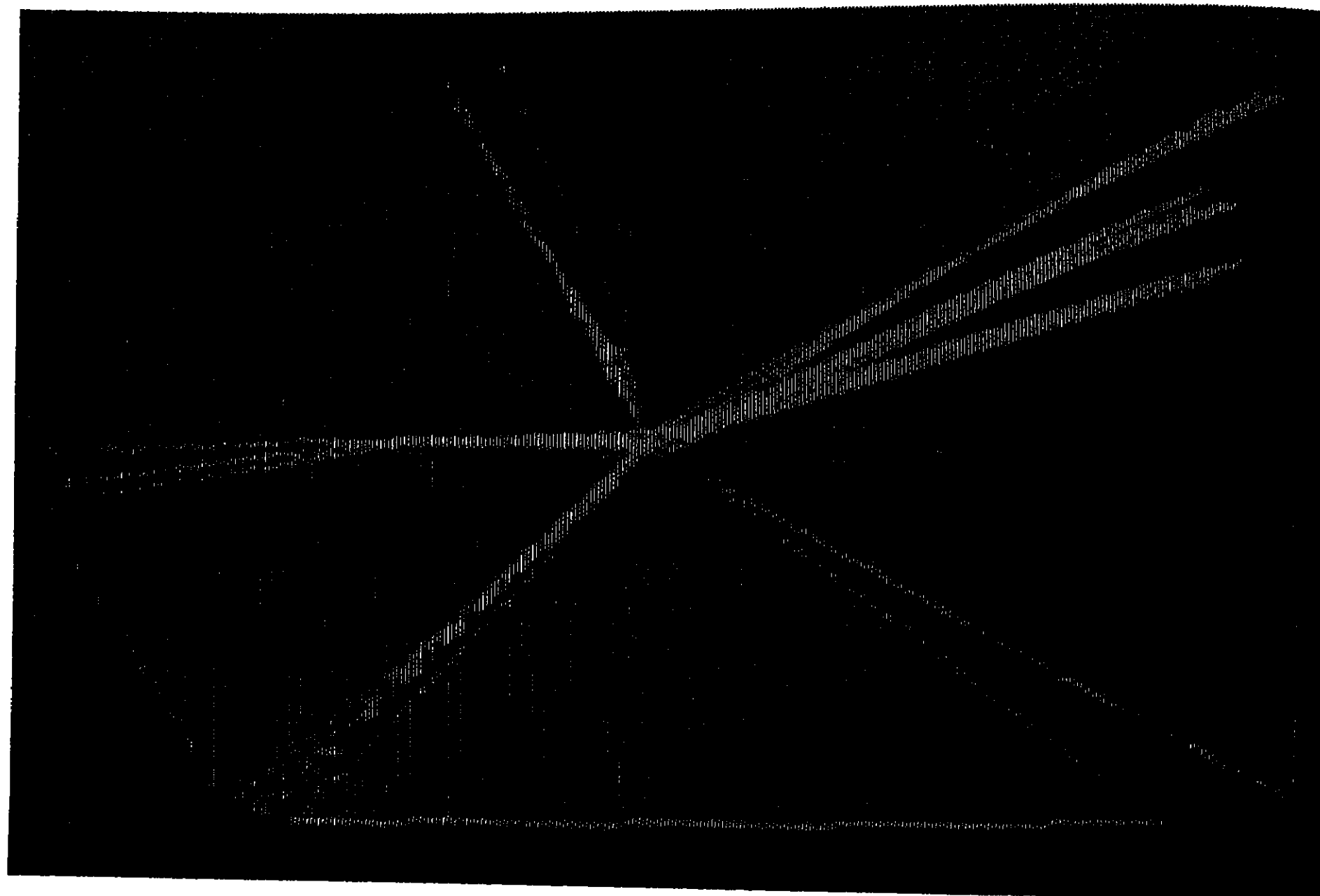
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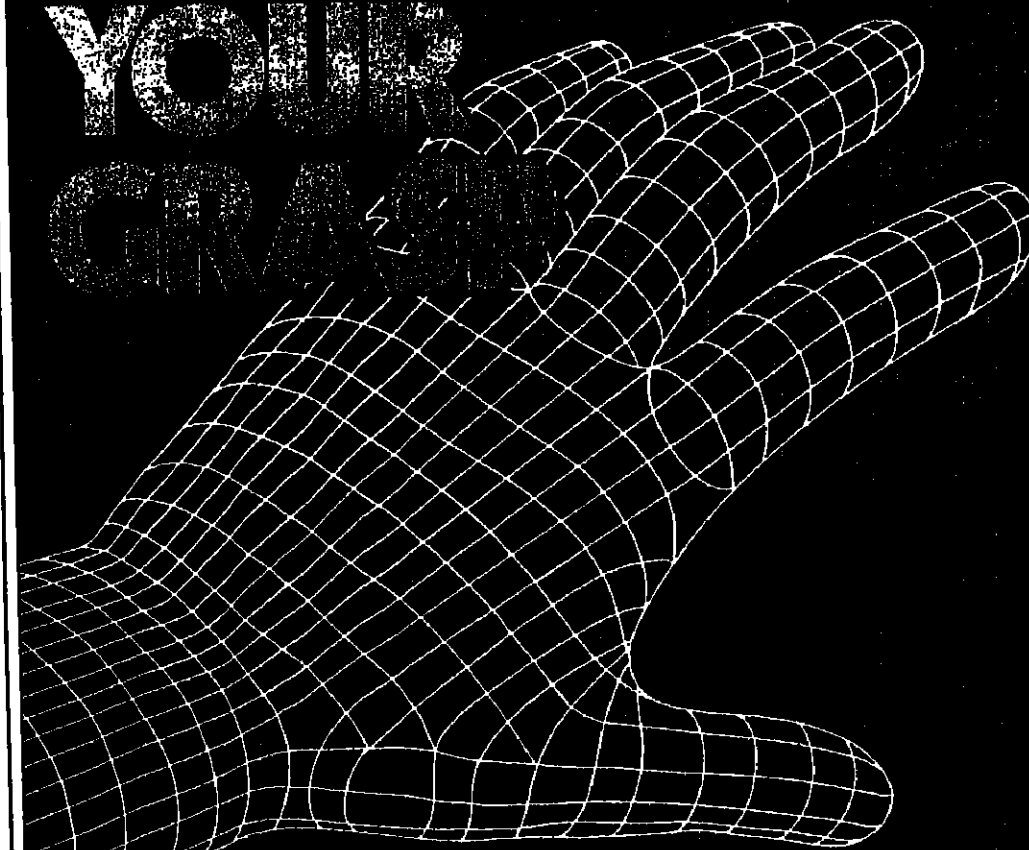
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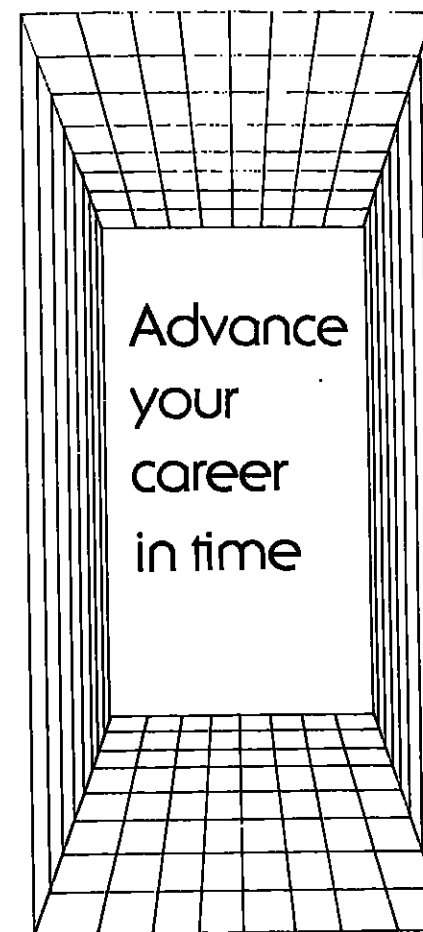
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(Ref. US/10)

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With minimum 3-5 years' DP experience. IBM, Honeywell

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Analyst Programmers and Programmers

With 3-5 years' experience + minimum 1 year's experience of

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Analyst Programmers and Programmers

With 2-5 years' experience, with one year's CICS or IMS.

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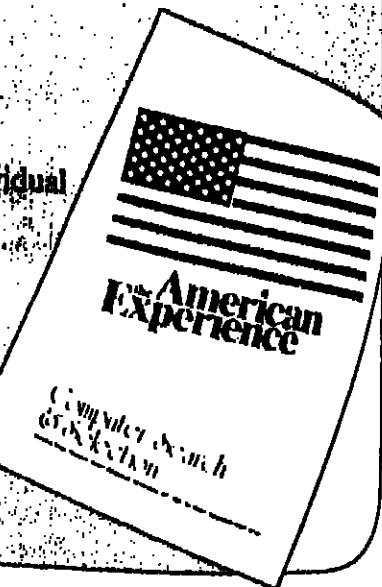
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Technical	IBM 4300 Applications Programmer	£4,400	K1381
Technical	Wang VS RPLII Analyst/Programmer	£4,400	E1396
Technical	DEC VAX VMS MACRO 32 Programmer	£4,400	E1393
Technical	DEC PDP 11, RSX 11, COBOL Senior Programmer	£4,400	E1392
Technical	HP3000 + related software. Programmer & Analyst/Programmer	£4,400	E1410
Technical	Redifon R Range, Editor. Programmers	£4,400	E1408
Technical	IBM 4341, COBOL, CMS, VSAM, Micro knowledge advantageous	£4,400	P1409
Technical	ICL DRS Business Consultant. Local Area Network	£4,400	P0897
Technical	Micro, Assembler, Pascal, Comms. Programmers	£4,400	P0127
Technical	ICL DRS Programmer, Pascal 'C'. ASAP - Manchester	£4,400	P0287
Technical	UNIX Programmers (Micro)	£4,400	P0557
Technical	Honeywell DPS8 Business Consultant	£4,400	P0797
Technical	Datapoint, RMS - Urgent - Middlesex	£4,400	E1353
Technical	ICL 9900, VME, COBOL, IDMS, TPMS (Not essential)	£4,400	E1385
Technical	DEC PDP, RSTS, BASIC + Programmers, Analyst/Programmers	£4,400	E1371
Technical	Real Time Process Control - Herts	£4,400	E1110
Technical	ICL 9900, VME, VME/B, DBS, IDMS, TPMS	£4,400	E2000
Technical	FORTRAN + - Urgent - Senior Programmer	£4,400	E1403
Technical	Real Time Data Acquisition and control	£4,400	E1404
Technical	FORTRAN 77 Programmer with possible experience of IBM 3081 and MVS	£4,400	E1316
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Technical	ICL Designer IDMS, TPMS - Bucks	£4,400	E1405
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CONTRACTS

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IBM 4300 Chief programmer. Must have PL1, DL1, CICS experience. Unipay would be useful. 1 year assignment. Ref: K1402

IBM PC Programmer wanted for 3 month assignment starting end of March. Must have Focus experience. Ref: K1400

IBM 4300 Applications Programmer. Essential skills CICS, VSAM and VMS. TSO would be useful. 3 month assignment. Ref: K1381

Wang VS RPLII Analyst/Programmer - ASAP - Middlesex. Ref: E1396

DEC VAX VMS MACRO 32 Programmer - London Ref: E1393

DEC PDP 11, RSX 11, COBOL Senior Programmer - ASAP - Farnborough Ref: E1392

HP3000 + related software. Programmer & Analyst/Programmer - All areas Ref: P1410

Redifon R Range, Editor. Programmers - South London Ref: P1408

IBM 4341, COBOL, CMS, VSAM, Micro knowledge advantageous. First contract in Central London, 12 months - £10,000 salary. Ref: P1409

ICL DRS Business Consultant. Local Area Network, 6 months - Manchester Ref: P0897

Micro, Assembler, Pascal, Comms. Programmers. 6 months +. Ref: P0127

ICL DRS Programmer, Pascal 'C'. ASAP - Manchester Ref: P0287

UNIX Programmers (Micro) Ref: P0557

Honeywell DPS8 Business Consultant - 6 months - Manchester. Ref: P0797

Datapoint, RMS - Urgent - Middlesex - c. £450 per week Ref: S1353

ICL 9900, VME, COBOL, IDMS, TPMS (Not essential) To start ASAP - London/Wiltshire Ref: S1385

DEC PDP, RSTS, BASIC + Programmers, Analyst/Programmers - Urgent - London Ref: S1371

Real Time Process Control - Herts. c. £450 per week Ref: S1110

ICL 9900, VME, VME/B, DBS, IDMS, TPMS. All positions from Programmers to Business Consultants and Designers - Urgent - all areas Ref: S2000

FORTRAN + - Urgent - Senior Programmer. Start date March - long term. Must have min of 5 years Real Time Data Acquisition and control. To work on Norsk Data. Interesting and involved application - Oxford. c. £500 per week. Ref: S1403

FORTRAN 77 Programmer with possible experience of IBM 3081 and MVS. Nord 100 experience useful (not essential) Oxford. c. £450 per week. Ref: S1404

ICL Designer IDMS - ASAP - 6-12 months - Birmingham Ref: S1316

ICL Designer IDMS, TPMS - Bucks Ref: S1372

ICL 9900, IDMS, TPMS Performance and training specialist - Bucks. Ref: S1405

ICL 9900, VME, IDMS, SCL - 6 months - Analyst/Programmer. Good for first time contractors - City. £375 per week. Ref: P1406

ICL PLAN Programmers. Immediate long term vacancies - Middx. c. £500 per week Ref: S1315

Overseas

IBM 4300 Systems Programmer contract. VMCMS and DOS/VSE to work in Germany on operating system conversion. Ref: K1401

IBM 4300, COBOL, CICS, DL1, Analyst/Programmer x 2 to write Management Information System for 12 months in Brussels. Ref: K1398

IBM System 34, RPLII with strong operational background - Spain/Italy. Ref: E1394

DEC PDP 11, RSTS/E, BASIC + Dutch speaking Programmer/Analyst - Holland. April start. Ref: E1390

PRIME, BASIC Senior Programmer/Analyst, Senior Programmer. March start - Belgium. Ref: E1395

Burroughs & MCP, Systems Programmer - Belgium Ref: P1411

ICL 9900, VME, IDMS, TPMS useful. System Programmers and Programmers - Holland/Switzerland. Ref: S1138

Datapoint conversion DOS, RMS - long term. Team of 4. German useful/not essential. Ref: S1000

PERMANENT OPERATIONS

IBM SYS 34/38 OPERATIONS MANAGER to £14,000 LONDON
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HP 3000 - MPE OPERATIONS SUPERVISOR c £9,500 LONDON
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ICL MES9 - TIME SENIOR OPERATORS to £9,000 MIDDX
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IBM - MVS OPERATOR to £7,500 HERTS
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ICL 4300 OPERATOR for indefinite contract to start in near future in Bristol. Ref: C20

HP3000 OPERATORS for mid term contract. Ref: C19

NETWORK OPERATORS always required. Ref: C18

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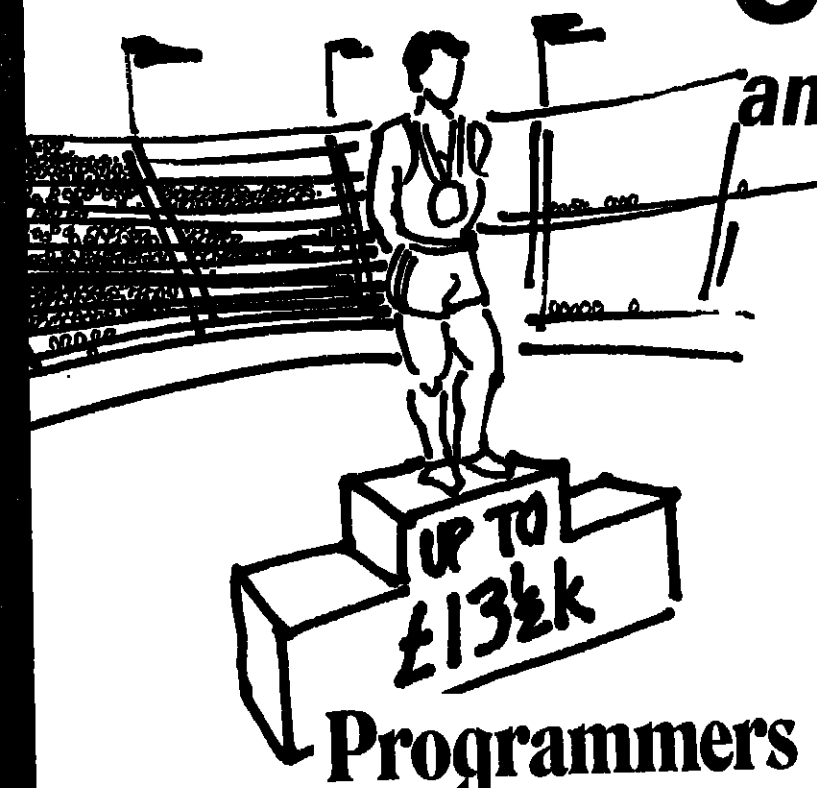
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Our profile calls for a software engineering professional who has gained considerable experience in developing and implementing guidelines for software design and development. You should have experience of working with large scale software and understand modern design technology.

Whilst experience of specific software is unimportant, a previous background in a product-oriented software environment is essential. In addition a sound understanding of formal structured methods is of paramount importance, particularly in software change control, project management and present day 'top down' design techniques.

The position reports to the Technical Director but enjoys a unique all-embracing influence that extends into development, marketing and training areas.

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Manchester M3 3EE
061-633 0427

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Willemsparkweg 92,
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010 3120-760947

LONDON AND THE HOME COUNTIES

RPG - ALL LEVELS CENTRAL LONDON

The IBM GSD range is now a market leader in small to medium business systems equipment and the call for RPG programmers is stronger than ever. Several clients with applications that cover SHIPPING, BANKING and FINANCIAL wide range of choice in environment and positions, with something of interest whatever the level. At this point it seems silly just to head for the highest salary on offer as a worthwhile view of what could be on offer is always more interesting, experience, salary or promotional prospects then please contact Marshall Cligman in London for an informal discussion.

BANKING SECTOR £12-21K Pkge + Car

Opportunities have arisen at various levels for candidates with experience at PROJECT LEADER, DESIGN or PROGRAMMING level in BASIC, BASIC-7/2, COBOL or REAL TIME applications to join an established Systems House and consultancy. Excellent careers are available in either development or support roles working with BANKING, COMMUNICATIONS or MESSAGE SWITCHING applications in the CITY or ABROAD. An attractive salary, reviewed regularly and supplemented by a generous benefits package, is available for the right people.

SOFTWARE HOUSE £10-15K SURREY

A leading software house have a series of current requirements for PROGRAMMERS with good COMMERCIAL experience. Because of the wide range of services and machines they have a general call for people with a COBOL, BASIC or FORTRAN background. The nature of the work is varied and dates will be required to demonstrate the ability to shoulder responsibility for client contact at all levels. A HIGHLY COMPETITIVE salary with a generous BENEFITS package will be offered with a CAR for more senior positions.

ALL LEVELS

£14.5K MANUFACTURING

This well-established company, WEST LONDON based and the leader in its field, require additional DP staff to strengthen their existing department. Their current requirement consist of two ANALYST/PROGRAMMERS with a minimum of two years' BASIC on DEC/PDP under RSTS/E, RSTS/E and its Internals, and a BUSINESS ANALYST with a sound commercial background, able to evaluate the company's office automation requirements. The A/P will need to be put on analytical skills. The company benefits include a company car for the more senior positions and an attractive relocation package is available if applicable.

MAJOR RETAIL COMPANY £12K W. LONDON

A household name in retailing based on the West London borders have development plans envisaged to last well into the late 80s. The company are currently running three ICL M220s using TME/MTS and are heavily committed to IDMS. To fulfil these plans, they require additional PROGRAMMERS and ANALYST/PROGRAMMERS with a minimum of 18 months' COBOL experience to join the team. Areas of development include: Point of Sale, Stock Order Entry and a large Warehouse Automation project. If you have been involved in similar systems and feel you can contribute to this company's growth then call us now for an immediate interview.

YOUNG H.P. PROGRAMMER £8-9.5K + Prospects

T.C.R. has been retained by a CITY-BASED financial company in order to recruit a Programmer with COBOL experience for their busy and progressive computer department. This is a golden opportunity for someone with around a year's COBOL including a knowledge of H.P. and some of the attendant software utilities. The department is still small and demand from the users for development of systems is high.

DEC VAX £s NEG CITY

At the heart of the City lies the pulse heat of International ANALYST PROGRAMMER the chance to be involved in a richly rewarding environment. One CITY INSTITUTION with a DEC VAX using BASIC need high calibre staff for a series of new projects and developments. Previous applications experience is not important as this client is looking for flexibility and potential, with a preference shown towards individuals who can demonstrate these essential skills. Some involvement with MACRO or operating systems would be useful. A GOOD BASIC SALARY with a GENEROUS BONUS SYSTEM is on offer.

18 MONTHS' IBM? to £9.5K + Benefits

Our clients are tremendously successful in the LONDON insurance sector and part of major international concerns. Appraisal of 1984 developments has identified requirements for young Programmers with one-two years on IBM mainframes using PL/1 or COBOL. The position will provide the opportunity to work with ON-LINE and DATABASE systems but more importantly perhaps, place successful candidates in an environment where TRAINING and CAREER DEVELOPMENT are considered of vital importance.

PROGRAMMER ANALYSTS £10.5K PETROCHEMICALS

One of the world's leading petrochemical companies are developing their commercial applications to such an extent that they now require further DP professionals to supplement their existing team. The ideal candidate will be a graduate with a minimum of one year's commercial programming experience using COBOL in a medium or large IBM installation utilizing MVS, TSO/SPF, CICS and/or DL/I. The emphasis on this occasion is put on MVS and TSO/SPF, as TRAINING in the use of ON-LINE and DATABASE techniques will be provided. This is an ideal opportunity for people who wish to move into a more technically demanding position.

TCR

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You must a minimum of 2 years' relevant sales achievement, drive, energy, and the ability and desire to lead by example.

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Cheshire Recruitment



We will put a lot of effort into finding the best targets for your skills. Let us help and advise you to further your career. Phone us NOW or write with a detailed c.v.

With five consultants in touch with computer users both in the UK and overseas we always have a wide range of career opportunities from Junior Programmers through to Management and Sales Positions. Many are never advertised.

We provide a professional and personal service to computer personnel seeking employment on either a permanent or contract basis.

PERMANENT

No matter where you are now, consider where you want to go. The next step is vital. We will help you take the right direction. Get your c.v. to us immediately or phone us today. We will be happy to talk to you.

PROGRAMMERS 2-5 years' experience of any hardware. Especially IBM and/or database knowledge. All areas.

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REAL-TIME PEOPLE At all levels, programmers, designers, etc. A wide range of opportunities EVERYWHERE.

CONTRACT

COMMERCIAL PROGRAMMERS AND ANALYSTS

We have a wide range of requirements for programmers with experience of IBM, ICL, UNIVAC, DEC, PRIME or HP throughout the UK with database and TP experience being an added advantage. We are also looking for a number of systems analysts with sound manufacturing systems experience on any hardware for long term contracts.

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If you have experience of "Time-Critical" applications and a knowledge of CORAL, BAB-BAGE, FORTRAN, RTL, MASCOT, assembler, etc, we probably have a contract to suit you. Contracts range from 3 months to 18 months initially. We need people to work throughout the UK and overseas.

Thinking of Contracting? First-Timers Guide available on request.

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PERSONAL SERVICE GUARANTEED. (Ref: CW2/1)

Communications Designer

BERKSHIRE

Up to £14,000

A major manufacturer of minicomputers is seeking Programmer/Designers to develop communications systems. The project involves support, design and development of X25 Level 2 software and LAN Link level software for Unix System III-based workstation.

Candidates should have practical experience of X25/HDLC or similar protocols. Additional experience of Pascal, C, Unix is highly desirable.

Successful candidates will gain valuable experience in the implementation of the lower four layers of the OSI model including Network definition and control.

CW 7/4

Florida

NETWORKS/X25

Up to \$50k

One of the world's most innovative producers of communications and information systems is currently seeking to recruit additional Comms experts to work at their laboratories in Florida.

The company is looking for experts with two main areas of expertise: Data communications specialists, requiring highly qualified candidates with experience of X25 and related protocols, package switching and network diagnostic equipment experience.

The second area calls for Network software specialists; at least two years experience of VTAM, BTAM and NCP. Additional experience of a COMTEN or IBM 3705 hardware is desirable.

In addition to the technical skills to be gained, the company provides a comprehensive benefits and relocation package.

CW 7/10

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01-399 9183

Datamatics, Freepost, Surbiton, Surrey KT6 5BR

Communications Manager

BERKSHIRE

Up to £18,000 + bonus + car

The Computer and Communications Manufacturers Business Section of a major systems house have created a new Account manager's position to assist in the development and management of this important business area.

This position calls for the combined ability of (A) selling/marketing the company's services and (b) a solid systems development background with more recent experience of communications systems, e.g. IBM Comms, ICL Comms, X25 and LANs. Finally, candidates should possess project management experience preferably with some financial and contractual responsibilities.

This position offers the successful candidate the platform to assume further business responsibility in the future.

CW 7/8

Coral/Mascot

LONDON/SURREY

Up to £15,000

A leading consultancy commanding large contracts with the MOD require professional Programmers and Software Designers to work on Realtime systems. Candidates should have a degree plus experience of Coral and preferably Mascot. Experience of Context and VAX machines would be helpful.

Successful candidates may look forward to enhancing their careers within an organisation proud of its reputation for professionalism and career development.

CW 7/5

C³ Development

LONDON/HOME COUNTIES

£16K + Package

One of Britain's leading information systems contractors is seeking consultants for research and development on major C³ projects.

Candidates should have a numerate science degree and have at least five years' experience in Defence Communications, working on large projects like Parmigan, BATES, etc. Candidates should have a thorough understanding of communications systems, analysis and design.

CW 7/6

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DEC Programmers

Guildford

to £11,000

Our client, part of a major group of companies, is a young, dynamic software house looking to recruit experienced programmers, who will enjoy being part of a growing company and making their own effective contribution to its growth. Client contact is an important part of the job—which means that we are looking for able communicators who are articulate, presentable and in possession of a wide range of technical skills. These technical skills will include programming in COBOL and/or BASIC, (on commercial applications using DEC equipment) program testing and, ideally, program specification writing.

In addition to the skills you bring with you, you will subsequently acquire others—in particular on micro-computers (including SIRIUS and APRICOT). The systems you will be developing will be both batch and on-line.

To apply for these and other positions, please contact Joan Ainsworth on 01-681 8317 or write to her at Computer Search & Selection, 6th Floor, Carolyn House, Dingwall Road, Croydon, Surrey, CR0 9XF.

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Our client, part of a major International Corporation, whose activities cover a wide range of computer services, electronics and telecommunications, offer this challenging career opportunity.

Ideally, you should have solid systems and programming experience, gained in an IBM environment, together with specialised telecommunications skills — preferably distributed data processing.

Reporting to the M.S.M., you will be an experienced man-manager — possibly a Project Manager seeking to move up the ladder and play a major role within a rapidly expanding and dynamic company

If your experience is relevant, you are interested in working on the Surrey/Hants border, a COMPANY CAR and believe you are worth up to £18,000 plus and substantial benefits then phone

Stuart Blake on Farnborough 516141

to arrange a confidential interview. Alternatively send detailed c.v. quoting ref: SB420

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We have the name... Have you the talent!

NEWBURY — SOFTWARE SALES AND MARKETING

We are Micro Focus — one of the fastest growing software product companies in the world. Our prestigious new headquarters building is located in Newbury, Berkshire, with additional offices in the USA.

Micro Focus has a unique product line enabling the use of COBOL on a wide range of micro-computers, backed up by a powerful set of development tools. In 1983 we achieved an extremely successful flotation on the Unlisted Securities Market and are now implementing an ambitious programme of growth.

With that background, Micro Focus is the perfect environment for ambitious Sales and Marketing professionals — energetic self-starters with a real desire to succeed in our expanding market.

Can you contribute in one of the following areas?

Dealer/Distributor Sales
OEM Sales
DP Sales
European Sales

Knowledge of software, an understanding of the micro software market and a technical background will all be useful. A proven track record in selling is essential. For European Sales communication ability in French/German is vital.

Product Marketing
Marketing Services
Marketing Communications
Public Relations

We seek bright, articulate people with the experience and flair to contribute in these fields. A background in the software industry is essential with the ability to demonstrate proven success in your current area of expertise.

With a growth rate such as ours the career and salary opportunities are exceptional. Your drive and commitment can thus be well rewarded. As well as excellent remuneration, benefits will include relocation assistance where appropriate.

For further information concerning any position contact:
Miss Ann Jackson Micro Focus Group Limited
26 West Street, Newbury, Berkshire.
on 0635-33518 (Direct) or 32646 x223
or clip and return the FREEPOST coupon to Myriad quoting MF/1802/CW

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Software Manager

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A major supplier of Computer Aided Engineering systems whose broad base of expertise covers a uniquely wide range of engineering applications from solid modelling to sales order processing have a need for a Software Engineering Manager. As a member of the senior management team he or she will report directly to the Managing Director of this progressive company whose innovative approach to the integration of CAD/CAM, manufacturing and business systems has secured its position amongst the market leaders.

The successful candidate will be responsible for all of the company's application programmers, systems analysts and systems programmers. These currently operate as three teams covering Commercial Applications, Technical Applications and Systems Software. Major development of the company's own products, enhancement of third party software and bespoke projects are being undertaken in all three areas.

The appointed candidate will be a software professional with extensive experience of managing software development who is fully conversant with structured design and programming techniques and with common standards implementation. Applications experience will have been gained in CAD/CAM, manufacturing or commercial systems preferably in an engineering environment.

A significant amount of time will be spent in liaison with first line management regarding the cost effectiveness of new product development and bespoke projects as well as ensuring that a professional and efficient service is provided to the company's marketing department and its customers.

This is an excellent opportunity for a dynamic individual with extensive software and management experience to employ his skills in a highly visible senior management position.

Please reply to: Jim Wallis:
office day: 01-741 8011
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- * Knowledge of voice PBX/data multiplexing
- * Technical marketing experience
- * Strong personnel/communication skills

PROTOCOL CONVERTERS (IBM)

- * Experience of IBM 3270 (either as user or designer)
- * Knowledge of access methods (VTAM, BTAM, etc.)
- * Familiarity with TSO, CICS etc.

Ideally you will be qualified to degree/equivalent level and will have a proven track record in data communications. These positions represent once in a lifetime opportunities to radically develop your career and lifestyle in one of the world's key locations within a tremendously successful organisation.

Contact: Shaheed Ahmed, B.Sc.

Please telephone or write to Kramer Westfield International Ltd., 25 Victoria Street, Windsor, Berks, SLA 1HE.
Windsor (07535) 36155 9.00 am to 7.00 pm.

Recruitment consultants in the data communications industry.

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SALES CONSULTANT c £30,000 pa

Due to continuing expansion we urgently need a Sales Consultant with previous DP industry experience and a sales track record. Based in our new Croydon offices and supported by resources and secretarial staff, you will have a key position in a newly formed sales team, supplying contract consultants and bespoke software.

Phone Chris Baker for an initial interview.

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We are a well-established computer maintenance organisation servicing several hundred sites in the UK and Europe. Increasing business success necessitates the recruitment of a Hewlett Packard 3000 System Support Engineer to cover Southern England and a sector of Europe.

The successful applicant will be aged 20-45 and will possess a thorough knowledge of HP 3000 hardware. A good working knowledge of HP software would be an advantage.

This position will lead to a more senior appointment. For further information and confidential interview please telephone or write to our recruitment consultant Howard Mequet, B.Sc. (Eng.) on:

01-427 0781 (9.30am-7pm)
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SENIOR APPOINTMENTS - £14K +

Hoechst



THE COMPANY

The largest pharmaceutical company in the world, Hoechst employs over 7,000 people in the U.K. alone. In addition to its activities in the fields of medical products, industrial plastics, animal health and plant protection, Hoechst subsidiaries and associated companies include such household names as Berger Paints, Rochas perfumes, Trevira, Clynol and Cuprinol. The U.K. headquarters is a modern purpose-built office complex situated at Hounslow, easily accessible by road, rail or the London Underground.

THE DP ENVIRONMENT

Currently an IBM 4341 model 2 running MVS, CICS, DL/I and COBOL, with a 3083 model E due to be installed in March. In addition, Hoechst is committed to personal computing, with 19 Apples in use under the guidance of an Information Centre.

THE VACANCIES

Two project leaders are required initially, with further expansion planned. They must be experienced systems analysts, preferably - but not essentially - with an IBM background and a good understanding of TP and database concepts and practice. Similarly, the successful applicants need not be former programmers, but they must be able to lead a programming team. The principal qualities needed are powers of leadership, self-motivation, and the ability to take a project from feasibility to implementation.

It is unlikely that candidates with less than four years' relevant experience will be suitable.

PROJECT LEADERS

to £15,000
plus substantial benefits

THE REWARDS

are considerable! With a basic salary of up to £15,000 pa, a review in June, a bonus based on Company results (an additional 2½% paid in 1983) and the possibility of an Exceptional Merit Bonus of up to 8% of salary for outstanding employees, financial rewards are among the best in the industry. In addition, benefits include:

- free private medical insurance
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and the many other advantages that only working for a major multinational corporation can bring.

YOUR NEXT MOVE

is to telephone 01-499 1948 for an application form, quoting ref: GM/2/73, or write with a FULL cv to Geoff Mackenzie, P-E Appointments Division, 166 Piccadilly, London W1V 9DE.



The P-E Consulting Group

MESSAGE SWITCHING

S-COM Computer Systems Engineers is a rapidly expanding software engineering company. (Our turnover has roughly trebled in each of the last three years). Our main expertise lies in state of the art developments involving communications (military, telephonic, area networks), process control, graphics and mathematical applications.

We have recently been retained (by one of our major accounts) to upgrade a digital PABX to meet exacting military standards. The initial phase of this work is investigative and requires existing systems to be documented according to ministry specifications.

We are therefore seeking to recruit two people as soon as possible to help with this project. Ideal qualifications would be:

1. Knowledge of JSP 188 standards
2. Knowledge of PABX or other telephonic or signalling systems
3. Knowledge of block structured and Assembler languages
4. Five-eight years' industrial experience for the more senior position
5. Three-five years' industrial experience for the second vacancy

The above posts are open to applicants seeking both

CONTRACT or PERMANENT employment

Vacancies other than the above also exist within S-COM and salaries are extremely competitive typically falling into the following categories:

- Up to three years' experience to £10K per annum
- Three to five years' experience £9-£13K per annum
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Remuneration for Freelances for the above posts is £13-£14.50 p.h. and £12-£13.50 p.h. respectively, according to experience. In addition expenses £130 p.w. are payable.

For further details of other vacancies, please call or write to Graham Blakoe.

FOR DETAILS OF OTHER VACANCIES IN S-COM (CONTRACT OR PERMANENT) PLEASE CALL OR WRITE TO LAWRENCE MILLS.

S-COM

Computer Systems Engineers Limited
Tower House, High Street, Aylesbury, Bucks. Tel: 0296 32023
Evenings after 7pm or weekends 0296 32055

THE MICRO TECHNOLOGY GROUP



The Micro Technology Group, founded in 1978, is now one of the most firmly established systems houses in the South East of England. Its product range includes both IBM and WANG business systems, which it sells to a broad portfolio of customers in the South East of England and to a number of major corporations throughout Europe. It also provides a wide range of hardware and software products, several of which have been developed in house, to an extensive dealer network. The group is based in the Pantiles, the elegant eighteenth century heart of Tunbridge Wells. The area provides reasonably priced housing, an excellent shopping centre and good schools. It is well positioned for access by train to London and, by means of the new M25, to the national motorway network. Micro Technology is now a multi-million pound company and will be expanding considerably over the next two years. As part of this expansion we require:

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If you are young, articulate, intelligent and hard working, with a proven record of success in the microcomputer or related industry, and you want to continue that success in the Garden of England, we need you to help us sell the IBM and WANG personal computers.

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As one of the leading suppliers of peripheral equipment for the IBM-PC, we need the services of a self-motivated sales professional, preferably with a good understanding of IBM computers, to sell these market leading products to IBM authorised dealers and national accounts. If you feel you have something to offer for either of these requirements, please telephone Nigel Wood on (0892) 45433.



Please send applications, including current cv to:
Micro Technology Limited
51-53 The Pantiles
Tunbridge Wells
Kent TN2 5TE

TECHNICAL MANAGER TO 18K + CAR

Reporting directly to the technical director, the person appointed will have had experience of managing a small team of people.

His department is responsible for:

- Installation and commissioning of hardware
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He will also be responsible for:

- Handling third party maintenance contracts
- Supervising research and development projects
- Taking hardware developments into production
- Supervising related system software work

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A key role at the centre of the Mercury network from £14,000: Birmingham based

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- * an advanced computerised supervisory control and data acquisition system
- * other communications and telemetry systems
- * and DEC based micro/mini computer systems

Applicants must have a minimum of 5 years experience in an operating environment involving real time systems and DEC (VAX) or VAX/Minicomputers. You must have experience in software design. A salary with one or more of the following areas is desirable:

• Telemetry Systems • Communications Networks • Process Control

You must be able to demonstrate initiative in the application and development of operational systems and have the ability to understand and solve problems without supervision.

You will initially be based in London, although the majority of time will involve working in Wiltshire. The move to Birmingham will take place in mid 1984.

Salary is negotiable from £14,000 depending on age and experience, and could be more for an outstanding candidate. A London allowance will be paid whilst based there. Benefits include non-contributory pension and relocation assistance, where appropriate.

This is an opportunity to make a key contribution to one of the most exciting developments of the decade.

For an application form, please contact Jeremy Webster, Personnel Officer, Technical, Mercury Communications Limited, 28/30 Theobalds Road, London WC1X 5NX. Tel: 01-404 5155 ext. 242.



(7804)

COMPUTER ENGINEER

for diagnostic software assessment.

The Telecommunications and Radar Branch REME at Millern in Worcestershire provides advice from which the Engineering Support of Army Telecommunications, Radar and Guided Weapon equipment can be formulated. The Software Division of the Branch provides specialist software expertise to enable REME to fulfil its role in these and other electronic, mechanical and aeronautical projects.

The successful candidate will lead a small team dealing, primarily during the development and introduction into service phase, with the diagnostic software required to support the many equipment projects which do not justify a dedicated software team in their own right. The team is responsible for assessing self test and ATE application software packages which will test and diagnose to component level and which include any interfaces and

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Candidates must have a degree or equivalent in electronic engineering or computer science or have a higher acceptable qualification. They must also have at least 2 years professional training or experience and should, preferably, have managerial experience. Evidence of specialist training in computing, software or microprocessors is highly desirable.

Starting salary in the range £175 - £9680 according to qualifications and experience. Promotion prospects.

For further details and an application form (to be returned by 9 March 1984) write to Civil Service Commission, Alencon Link, Basingstoke, Hants, RG21 1JB, or telephone Basingstoke (0256) 68551 (answering service operates outside office hours). Please quote ref T/6164.

Ministry of Defence

(7828)

Sales Managers

Three Sales Managers are required to promote micro/WP systems for this large manufacturer in the following areas: Major Accounts, OEM Accounts and Sales Support. At least 10 years' DP experience, ideally in the micro/WP field, and sales management expertise in the relevant market area, will greatly interest our client.

Senior Network Controller

To work on the international network of a London based financial concern, liaising between engineering and analytical personnel on all aspects of development and support functions. Candidates should have a strong engineering background, with a good knowledge of IBM protocols and procedures. Also the ability to train staff, evaluate equipment and advise management of developments.

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Application forms and further details from the Chief Administrative Officer (TDA/O), S.C.A.E., St. Mary's Road, London W5 8PF. Telephone: 01-579 4111.



LOUGHBOROUGH UNIVERSITY OF TECHNOLOGY ROBOTIC PROGRAMMING

Applications are invited for the post of RESEARCH ASSISTANT to work on an SERC-sponsored project in off-line robotic programming. Candidates should be good honours graduates, preferably with some industrial experience. The appointee may be able to register for a higher degree.

The appointment will be for two years in the first instance at a starting salary of £5,745. Applications for further details from John Middle, Department of Engineering Production, Loughborough University, Loughborough Leicestershire LE11 3TU.

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There are vacancies for people to work in:

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CLOSING DATE 9th March, 1984.

Further information may be obtained from K. B. Maunderson on Warrington (0925) 66000, Ext 467.

Application forms may be obtained from

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number DL/840 to:

The Personnel Officer

Daresbury Laboratory,

SERC, Daresbury

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WA4 4AD

(7886)

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Please reply in the first instance to:

Mrs. S. Middleton
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Ref: L/7/A

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Inner London: Salaries to £18K

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* advanced signal processing hardware.
* data acquisition and analysis systems.
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Ref: L/7/C

Real-Time Programmers

Central London: Salaries to £11K

A leading Systems House and Consultancy is seeking to recruit additional Real-Time Programmers for its Central London Head-Office. Suitable candidates should be graduates with at least 12 months' subsequent programming experience in a real-time scientific environment. It is essential that you offer fluency in at least one of the following: PASCAL, C, FORTRAN, ADA, CORAL-66 or Assembler. Hardware experience is less important, but preference will be given to applicants who have recently worked in a development role on PDP-11/VAX; Intel 8080/8 or Motorola 6800/68000. Ref: L/7/D

Simulation Systems

S. Home Counties: Salaries to £14K

Having recently gained a number of prestigious contracts our client has an immediate requirement for FORTRAN Programmers and Simulation Engineers. The company is sited close to well developed motorway and rail facilities and therefore these positions will appeal to those living in the major Thames Valley towns, Heathrow and Gatwick areas or S.W. London. All candidates should be aged 23-32 years and preferably hold a numerate degree. Your recent programming or systems experience should have been in the areas of (a) VLSI and hybrid circuit design (b) simulation of ballistic/dynamic systems or (c) battlefield/ tactical weapons performance.
Ref: L/7/E

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MVS/VM SYSTEMS PROGRAMMING



- ★ Technical Support and Consultancy for major client installations.
- ★ Product Training in Chicago, USA.
- ★ European and USA user group meetings.
- ★ Technical excellence in the ultimate security of complex mainframe configurations.

SKK, with headquarters in Chicago, USA, are the authors of the renowned Systems Security Software - ACF2 (The Access Control Facility) which operates under the MVS, VM & VS1 operating systems. Founded over six years ago our growth continues with a user base of 200 in Europe, 80 + in the UK, with over 1,100 throughout the world.

We currently have requirements for Systems Programmers with practical experience in some of the following areas: System Generation of MVS, VS1 or VM, SMP, JES, TSO, ASSEMBLER, Storage Dumps, IMS, CICS. ACF2 experience is an added advantage. The ability to understand technical problems and be able to communicate their solution is of prime consideration.

You will be providing ACF2 support to an impressive list of major IBM installations. These positions are based in our Central London offices, where a dedicated team is engaged in responding to questions associated with the complexities of the IBM operating systems and other proprietary software program products as they relate to the ACF2 security products. You may also aid in technical support within the UK and European marketing environment and customer education.

These consultancy posts will afford the chosen individuals significant exposure to a wide range of software packages and tools in use within the IBM mainframe environment thus enabling continued technical advancement.

Positions also exist for individuals interested in working in France and/or Germany. Appropriate languages a prerequisite.

These are obviously unique and superb opportunities for further developing your technical, business and communication skills, whilst working with experts on the most respected product of its kind in the IBM market place.

SKK, a progressive leader in an innovative field, offers qualified candidates with a strong desire to further their careers, competitive salaries and comprehensive benefits including non-contributory life assurance and BUPA cover.

Send resume in strict confidence to:
SKK (UK) Ltd., 140 Brompton Road, London SW3 1HY.
Attn: Office Manager

(7001)

WORDPLEX

Systems Division
Software Specialists/
Programmers
£ negotiable, plus car.

Wordplex are a leading WP/Office Automation company with products ranging from Personal Computers to large distributed office systems.

We currently require Software Specialists and Programmers for active involvement in the development/enhancement of the following:

- | | |
|--------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> Operating Systems | <input type="checkbox"/> Word Processing |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Computers |
| <input type="checkbox"/> Electronic Mail | <input type="checkbox"/> Local Area Networks |
| <input type="checkbox"/> Electronic Filing | <input type="checkbox"/> Wide Area Networks |

If you have a sound assembler background, or experience of a block structured language (e.g. Pascal), and feel you could make a useful contribution in one or more of the above areas, we would like to talk to you.

Also urgently required!

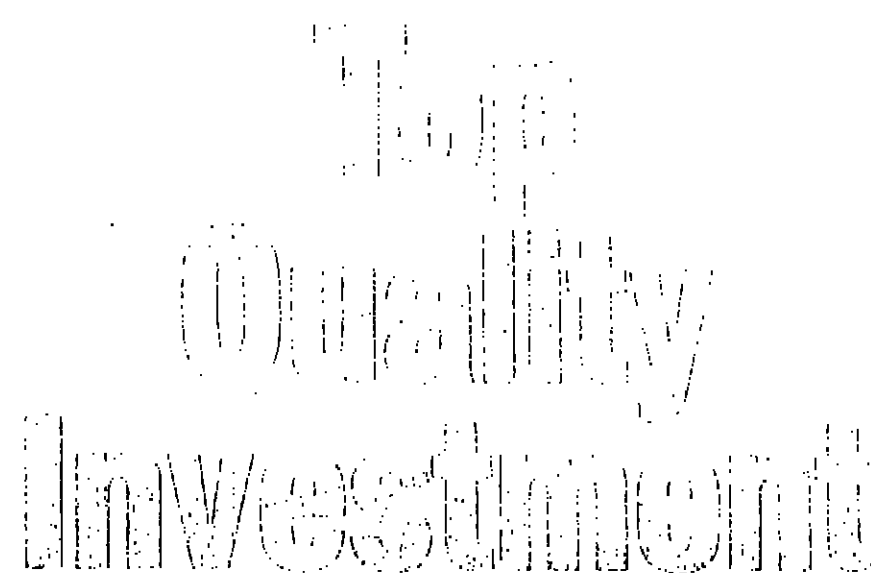
Analyst/Programmer, Business Systems £10K neg.
Located at Wordplex U.K. Management HQ, in Reading. To be responsible for all aspects of System Design, Development and Maintenance on our in-house IBM System 34.

Applicants should ideally have two years RGP 2 experience and a thorough knowledge of mapics. Full training will be available on datapoint and wordplex equipment.

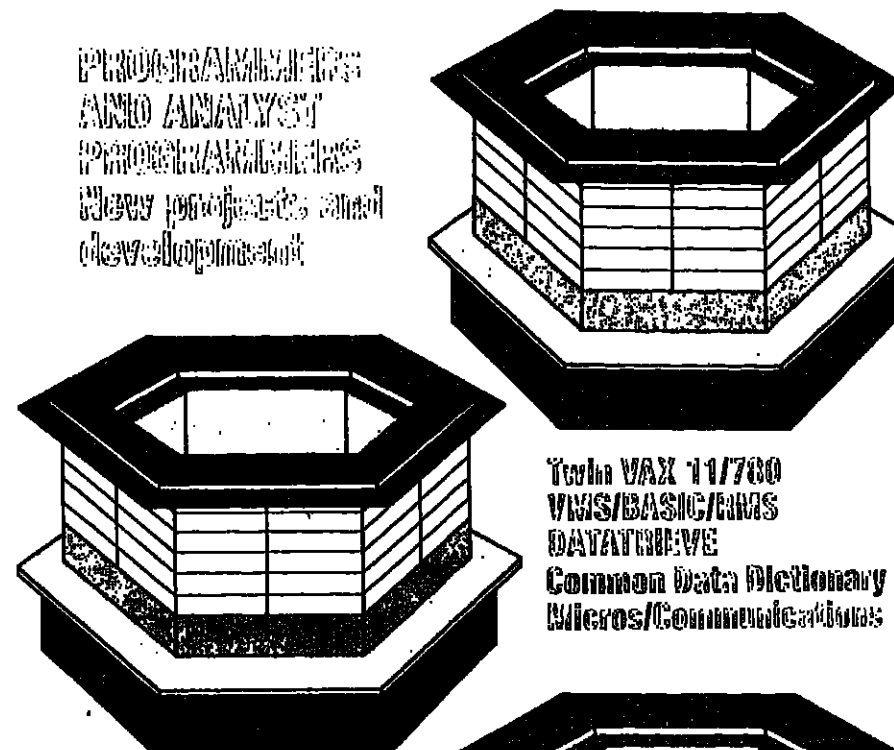
Please write with curriculum vitae or telephone George Shaw on 01-549 9236 (24 hour answering service) for an application form.

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For over 80 years Buckmaster and Moore have been one of the most progressive stockbroking firms in the City of London and are highly respected for the quality and range of their services. These include investment management, investment planning, individual portfolios, banking facilities, new company launches, economic analysis, company research, international and corporate consultancy as well as the usual broking services. However, unlike many City firms Buckmaster and Moore manage private money with the Private Clients Department alone managing over £400,000,000 of investments. Based within the London Stock Exchange Building, the working environment is dynamic, vital and richly rewarding. At the centre of this activity lies the Computer Department providing a wide range of facilities to cover the diverse needs of the company. Buckmaster and Moore are now embarking on a new phase of computerisation with the development of key processing and information systems and offer a real opportunity to join a growing and secure company in this important phase of their development. Every encouragement will be given to expand and develop potential and to progress your career. A degree will be an advantage to applicants as well as applications knowledge, systems experience and an ability to work as part of a team. Salaries are extremely competitive and are supplemented by a substantial bonus scheme, together with the normal benefits associated with a major company. For further information and an early interview please contact our recruitment consultant, Marshall Cligman, at the London office or evenings (Epping 76085).

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salaries £12,000 - £20,000
first class benefits package

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4.00 - 8.00 p.m.	

If you are interested but cannot make either evening then please call Myriad on 01-383 0981

E2/1602

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myriad
Recruitment Consultants

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Telephone: 01-353 0981 24 hours

25 South Street, Reading, Berkshire RG1 4QU
Telephone: Reading (0734) 591151 24 hours

(7001)

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REAL-TIME SOFTWARE OPPORTUNITIES

EAST MIDLANDS
Salaries £8000 - £13000 +
Plus relocation

Our Client is the leading manufacturer of power automation products and telecontrol equipment and systems. Their Systems Software Department now wish to recruit a number of high calibre personnel with real-time mini computer systems experience.

Technical Support Analyst

- We would like to hear from candidates who have:-
- * a degree in engineering or computer science
 - * approximately 8 years software experience in real-time mini-computer applications including some involvement with telecontrol
 - * good communication skills with the ability to understand system capabilities and user requirements.

TELECONTROL SYSTEMS**Senior Programmers/Programmers**

For these positions we would be interested in candidates with the following skills:-

- * a degree in engineering/computer science
- * a minimum of 2 years programming experience is essential with a high level language background - preferably CORAL 66
- * some customer interface experience is desirable for the senior positions

The Company is situated in an attractive East Midlands location where housing costs are very reasonable. Naturally, a generous relocation package will be offered where appropriate and terms and conditions of employment are excellent. If you feel that you have the necessary qualities to succeed in these challenging roles contact our advising consultant Rod Beeson on 021 643 8501 (business hours) or 021 777 8743 (eves/wknds) or simply complete and return the FREEPOST coupon.

Name
Address
Tel(day) (eves/wknds)

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01 836 8371 Computer People London, 401 House, 85 St Martin Lane, London WC2N 4JS • 01 608 9011 Computer People South, 27 George Street, Coventry CV1 1JB
021 651 8309 Computer People Midlands, Alpha Tower, Birmingham B1 1TT • 01 491 1266 Computer People North, Sovereign House, Stockport Road, Stockport, Cheshire SK9 2LA • 01 826 8311 Computer People International, 401 House, 85 St Martin Lane, London WC2N 4JS
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Rural Location

to £11,000 p.a.

This is a superb opportunity for young, enthusiastic engineers with Real-Time software experience to join a highly successful British company currently developing an exciting range of high technology products.

Ideally, you will have experience of CORAL, PASCAL, INTEL 8086 ASSEMBLER gained in an avionics or other Real-Time environment; but any Real-Time microprocessor experience, especially utilising PDP11s, would be useful. Successful applicants will form an in-company "software house" assuring variety of projects and first-class training.

The salaries are excellent and the attractive benefits include full relocation, subsidised restaurant and pension scheme including free life assurance. Five weeks' holiday, optional overtime and flexible working hours complete the package.

With the rural location, a choice of village or town properties at sensible prices is available and, for "outdoor" types, a wide variety of water and field sports are at hand.

To further your career and enhance your lifestyle, telephone Beverley Leonard on Bristol (0272) 277195, or send a full curriculum vitae to:



The Recruitment Partnership

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Bristol BS1 1RT

(7890)

Technical Support VME/B SCL THAMES DITTON, SURREY

The Milk Marketing Board is the dairy farmers' organisation of England and Wales. We employ around 13,500 staff and operate a substantial range of services and commercial enterprises with an annual turnover of nearly £2,400 million.

As the leader of the SCL Team - Technical Support - you will be responsible for the implementation and support of all VME/B based production systems. The work includes organising the team, providing advice on the use of facilities in new systems and ensuring their operational acceptability.

Probably in your 20s, you will have a good working knowledge of SCL and experience of organising and motivating others. A background in COBOL would be an advantage.

We offer an attractive salary depending on age and experience and excellent company benefits include a subsidised restaurant and thriving sports and social club on site.

MMB

Please send full career and salary details quoting ref FY/649 to:
Carol Carter, Personnel Officer
Milk Marketing Board
Thames Ditton, Surrey KT7 0EL
Tel: 01-398 4101 ext 2263

(7872)

COMPUTER SERVICES MANAGER

Reed Stenhouse Management Services Ltd, is a successful division of the International Reed Stenhouse Group, one of the world's leading Insurance Broking Companies. We currently use Honeywell DPS7 equipment with TOTAL DBMS. In our Glasgow office, and Honeywell DPS8 equipment in various locations throughout the UK. Following promotion of the present holder of this position to Computer Services Director, we now require to fill this post. The prime responsibility of this position will be to manage the day-to-day operation of all computer hardware and software within the UK Group and to manage the 30 staff employed in the department in Glasgow. Ideally, candidates will have at least 10 years' relevant experience in DP, the major part of which should have been spent in the Operations and Technical Support areas at a senior level. This is a senior management appointment and the salary, which is negotiable, will reflect our regard for the importance of the job and the capability of the person appointed.

REED STENHOUSE

Applications in writing, with full C.V. to:
The Company Secretary
Reed Stenhouse Management Services Ltd,
145 St. Vincent Street, Glasgow G2 8NX.

(7931)

MVS Systems Programmer

London

c. £2700/month

As part of their ambitious development plans our Client is opening a new Data Centre to house dual IBM 3083's. We require an experienced Systems Programmer to be responsible for the implementation of MVS/SP 1.3 and JES2 on the first 3083, and for maintenance and tailoring of MVS as a CICS/VTAM based network expands. The successful applicant must have a good understanding of MVS, whilst knowledge of VTAM would be useful, and the assignment is initially for 6 months.

T073

ADABAS/NATURAL Specialists

Holland

c.£2600/month

As part of a program to significantly expand the use of ADABAS and Natural our Client has established a central support group. We are seeking two experienced ADABAS specialists to join the group - one with a background in application design and development to provide a consultative service to divisions throughout the organisation and the second with a good technical appreciation of ADABAS/NATURAL to work on system implementation and the development of interfaces and end user facilities. Although based in Holland, there will be a requirement to undertake short trips throughout Europe. The assignment period will be open-ended with an initial commitment of 6-12 months.

B074

Software Programming

Belgium

c. £2500/month

We require an experienced Software Programmer to undertake a three to six month assignment assisting our Client with the conversion of a database system by developing VM/CMS Execs and writing BAL migration tools. A good knowledge of Assembler and CMS is essential whilst familiarity with Data Dictionary techniques and DOS/VSE would be advantageous.

L075

MVS & IMS Systems Programmers

Scotland

c. £3000/month

As a result of our Client establishing a new multi-cpu Data Centre we are seeking two experienced Systems Programmers - one to support MVS/SP 1.3 with JES2 and the second to support IMS DB/DC Rel. 1.2. In both cases duties will involve generation, maintenance, performance tuning and debugging and candidates should have a minimum of two years relevant experience - both assignments are open-ended with an initial commitment of six months starting in April/May.

J076

IMS Systems Programmer

S.E. England

to £3000/month

We are seeking an experienced IMS Systems Programmer to work at our Client's large multi-CPU Data Centre, where there are plans to install DBRC in the near future and to migrate to MVS/XA around the middle of the year. The successful candidate would be involved in these projects as well as general support and maintenance of a large IMS Rel. 1.2 system, which is undergoing a considerable expansion during the course of the year. The assignment will be on a renewable 6 monthly basis and applicants should possess a minimum of 4 years relevant experience and will preferably have some prior knowledge of DBRC.

J077

MVS Systems Programmer

Home Counties

c. £2750/month

We require an experienced Systems Programmer to act as the senior member of a team supporting MVS/SP 1.3 and JES2, recently installed under VM/SP on our Client's 3082. The task is to tailor MVS so as to improve the availability and performance of the production service which supports CICS, IMS DB and TSO, as well as to provide training and guidance to the other team members. The successful applicant will have a good understanding of MVS, and should preferably have some knowledge of the other products. The assignment is initially for 6 months with the possibility of extensions.

T070

CDS is an Anglo-Swiss Consultancy specialising in systems programming and DB/DC application development. For further details of the above positions or for an informal discussion on future European or UK assignments please contact Mike Shire at our UK offices Tel. 0276 681261 (or through our answering service on 0276 681266 during evenings/weekends).

Telex 858062

CDS Limited, 19A Park Street, Camberley, Surrey GU15 3PQ.

CDS

**IBM Systems Programming
and DB/DC Specialists**

Sixteen years ago, Data General burst upon the computer world as a fully fledged major innovating company with the Nova minicomputer. It was way ahead of the competition and being one step ahead has been the Data General philosophy ever since. A steady stream of exciting new products followed which were reflected in a massive

increase in sales and a consistent and dramatic record of planned growth.

1983 again saw Data General in the forefront of new computer developments. In the Spring, we launched the MV/10000, the world's most powerful 32-bit minicomputer. For performance/price, reliability and compatibility, it is unbeatable. We followed this in the

Autumn with our new generation of desktop microcomputers with minicomputer performance and stand-alone or on-line capability.

And in 1984, there's more to come in both hardware and software.

Don't you owe it to yourself as a professional DP person to find out more about Data General, the most innovative and fastest-growing computer company today!

Right now we're looking for several of the most talented people in the industry. And we mean talented. To qualify you'll need to have serious career commitment and real achievement behind you. We currently need Sales Executives, Software Support and Service Engineers but we are also keen to hear from computer professionals in other disciplines who have the ambition to share in the success of a genuine industry leader — Data General.

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1968 • First company to offer a 16-bit minicomputer using medium-scale integration and incorporating multiple accumulators in the central processor.

1969 • First company to offer 15-inch circuit boards, now standard in the industry.

1972 • First 16-bit minicomputer CPU on a single printed circuit board.

1973 • First minicomputer company to establish its own semiconductor development and manufacturing facility.

1974 • First minicomputer company to offer error-correcting memories.

1975 • First minicomputer company to offer a stand-alone, asynchronous input-output processor as part of a standard product.

1976 • First minicomputer manufacturer to offer a 16-bit minicomputer in a chip. • First ANSI 74 COBOL programming language for small computers

1977 • First interactive ANSI COBOL in the computer industry. • First minicomputer company to develop "Winchester" technology disc.

1978 • First minicomputer processor to support array and vector operations. • First company to introduce multi-terminal microcomputer COBOL.

1979 • First minicomputer manufacturer to offer minicomputer-based PL/I.

1980 • First public packet switching networking product, XODIAC software, for minicomputers based on the X 25 international standard.

1981 • First minicomputer company to offer IBM SNA compatibility

1983 • First company to offer the world's most powerful virtual memory 32-bit minicomputer. • First company to produce new generation microcomputers with minicomputer performance

1984 • First, and the years to follow will bring other industry firsts, but in the present Data General has the competitive edge to supply cost effective solutions to the Industrial Automation, Office Automation and Desktop marketplaces. • Unrivalled compatibility of software throughout the product range ensures protection of the customers original valuable investment. From the low end Desktop Generation to the top of the range ECLIPSE MV/10000, Data General has the advanced technology to provide its customers with industry leading cost-effective solutions.

OTHERS FOLLOW.

Please fill in the coupon for more information (attach your business card and/or attach your cv. If you prefer). Send the coupon to: John Cunnell, Personnel Manager, Data General Limited, Hounslow House, 724-734 London Road, Hounslow, Middlesex.

I am interested in finding out how my career would benefit with Data General.

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ADDRESS _____

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The new MV/10000 is the most powerful computer in Data General's Eclipse family. It is the fastest and best price/performance virtual memory 32-bit computer on the market.

My experience is in: (Tick box & indicate years of experience)

Mini/Mainframe Sales ☐ _____

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Other (please specify) ☐ _____

My current employer is _____

I have previously worked for _____

Data General
a Generation ahead

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Up to £15,000 + 2 litre car

Graphics systems have come a long way since drawings first came off the drawing board and into the computer. The latest colour graphics systems show a degree of sophistication and versatility that make them equally at home in an up front defence environment or in a fashion house.

Our client is part of a major international organisation, manufacturing and marketing a range of 'state of the art' plotting and graphics systems for use in all aspects of modern industry. They already hold a large share of the market and wish to further expand their already wide applications in an under-exploited market place.

This is where you come in. We are seeking two self motivated individuals to join a small sales support team involved in all pre-sales activities. Your role will be to advise customers on the various software applications packages and hardware configurations as well as carry out demonstrations, training and running benchmarks.

These are key positions and successful candidates are likely to have extensive experience with DEC or IBM systems and may have some knowledge of remote or graphics applications. Communications skills are also extremely important because of the high level of customer contact.

The company is based in Berkshire and full product training will be given in the UK and California. Conditions of service are excellent and reflect those of a large international company including medical, bonus and pension scheme.

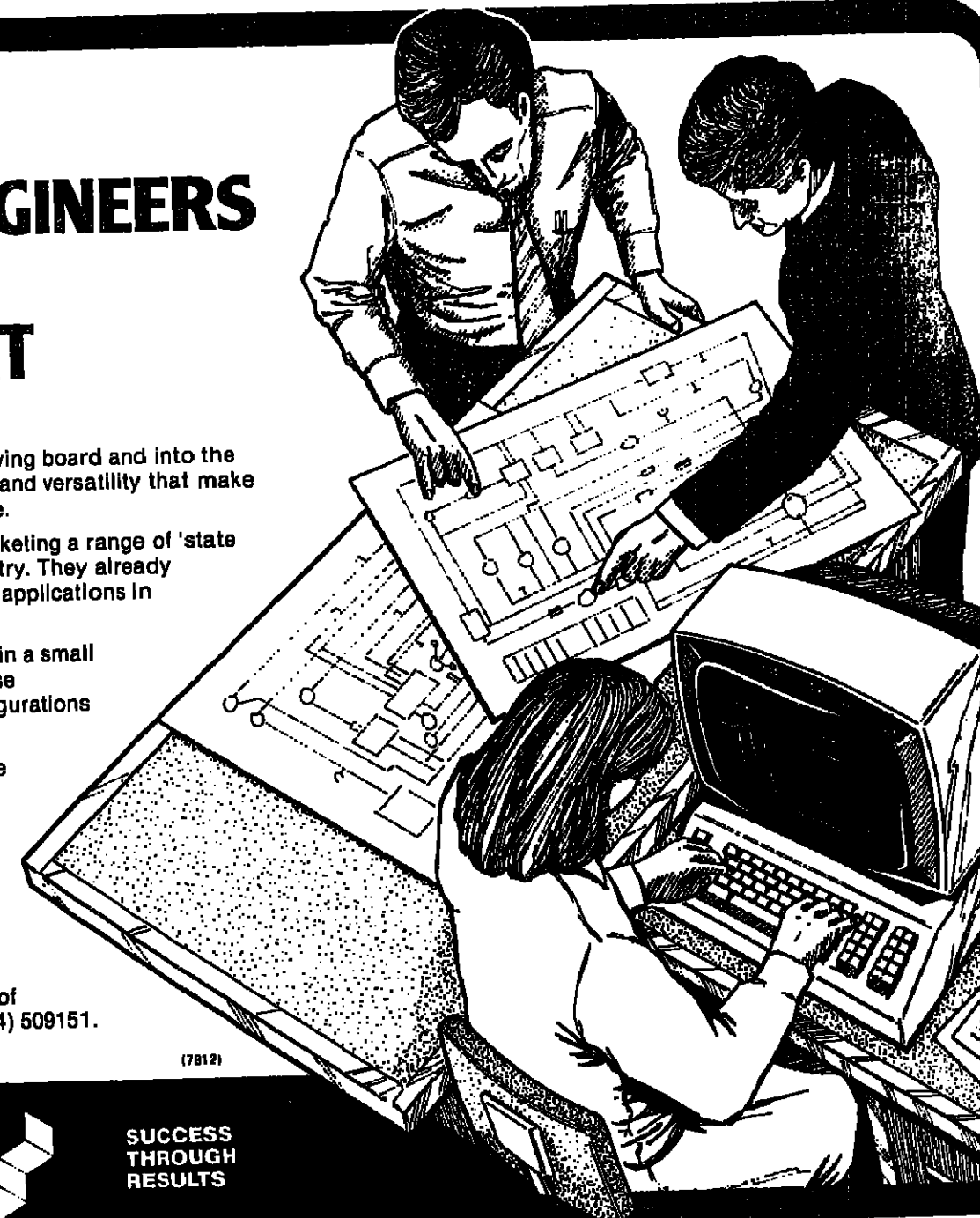
If you think you have the skills and initiative to join our client at the frontiers of graphics and plotting systems applications, contact Val Abi on Reading (0734) 509151.

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INNOVATIVE BUSINESS SYSTEMS ANALYST

Technical Index is a rapidly expanding company within an international group and specialises in the distribution of a wide variety of microfilm and microfiche-based information systems that provide essential technical data to engineers, designers and buyers. We have a well-established DEC VAX 11/750 System as part of the production process. We are now ready to use the system for the development of new products. To assist us, we wish to recruit an energetic free-thinker who meets the following requirements: At least two years' experience in business systems analysis. Some computer programming experience. Professional attitude. Probable age 25-35. We are particularly anxious to find someone who is not steeped in the traditions of conventional analysis, specification, design, coding, etc. We intend to pass straight from analysis to implementation using the ADMINS systems development tool. Knowledge of ADMINS is not essential but would be an advantage. If you are looking for better ways of fulfilling your role as a Business Systems Analyst, if you have the skills and initiative to join our client at the frontiers of graphics and plotting systems applications, contact Val Abi on Reading (0734) 509151.

OPPORTUNITIES IN USA

Circuit Test - MSI/LSI Logic, ATE
Computer Programmers - PDP 11, VAX/VMS
Systems Managers - VAX 11/750, VAX 11/780
Software Development - MC68000 system
Electrical Design - Power Distribution AC, DC
Digital/Analogue Design - ENI Investigations
Shock/Vibration Analysis - IFEM ANSYS

Please forward detailed resume to:
SAC Technology Group Ltd, Brunswick House, Upper York Street, Bristol BS2 8DB. (7808)

We have recently completed a Systems Planning exercise in support of the Group's ambitious business plan. Our strategy requires the implementation of new real-time transaction processing and office automation services throughout the Group by the end of 1986, based on a policy of distributed mini and micro processors.

These new systems will be developed using PROMPT project management and YOURDON - based structured analysis and design methods, to which management is fully committed. We require someone, probably currently at Senior Analyst or Project Leader level with experience in using similar methods, to oversee the implementation of these standards and to direct the training of departmental staff. It is expected that success in this position will lead to a more senior project management role.

Stewart Wrightson
International Insurance Brokers



This position, which includes attractive additional benefits, offers excellent career prospects within a young, progressive development environment. For further information contact Mike Kelly, Systems Development Manager, on 01-623 7811 or write to him, enclosing a current c.v., to Stewart Wrightson, 1 Camomile Street, London EC3A 7HJ.

☐ I am interested in Reel

KPG PERMANENT • KPG PERMANENT • KPG PERMANENT

- PROG./ANALYST PROGRAMMER** SE15
Minimum one year's experience SYS 36 RPG III for large engineering company offering excellent career prospects. Ref. 8433/DF
- PROGRAMMER** CENTRAL LONDON
ICL/COBOL/VME Min. 2 Years' Exp. Ref. 8433/DF
- PROJECT LEADER** - Unipac TPS/TPMS. Modification of commercial packages. Supervising development through to installation, working closely with the users. Ref. 8388/DF
- PROG./TECHNICAL SUPPORT** CENTRAL LONDON
Graduate preferred, minimum three years' COBOL programming experience with a ability to communicate effectively at all levels. To design, install, test, and maintain COBOL programs for users, prepare and present in-house training courses and provide technical support. Opportunity for some travel. Ref. 8388/DF
- CONTROL ENGINEER** MIDDLESEX
DEC analyst programmer background. Servo Control experience, computer mechanism strengths geared to CAD/CAM and LARGE ANTENNAE. Ref. 8438/DF
- ASSISTANT TO DPM** NORFOLK
Analyst - systems development. Age early mid-thirties, must have man-management ability, good commercial background on ICL kit. Some experience on IBM mainframes useful as migration to IBM may be possible. Ref. 8438/DF
- PROGRAMMER** PETERBOROUGH
Minimum one year's system 34 RPG II experience for major manufacturing company. Ref. 8438/DF
- PROGRAMMER** SURREY
Good COBOL programmer required to work for a software house on ICL ME28 kit. TME/TP experience being essential. Ref. 8432/PH
- ANALYST PROGRAMMER** WEST SUSSEX
A well known manufacturing site are currently looking for an Analyst Programmer with knowledge of factory systems and experience of IBM GSD machines, COBOL and/or RPG II. Ref. 8431/PH
- CHIEF PROGRAMMER** SURREY
A major multinational company require a Chief Programmer with a minimum of four years' COBOL with a working knowledge of DEC VAX/VMS. Ref. 8431/PH
- SOFTWARE ENGINEER** BUCKS
If you are, educated to BSc/HND level, fluent in PASCAL (or other black-structured language) and have experience of DEC you should apply now. (Relocation expenses will be paid). Ref. 8412/PH
- ANALYST** SURREY
Owing to expansion a major company currently running an IBM mainframe require an ANALYST, aged around 28, with around five years' in DP (two of which is analysis). Ref. 8414/PH
- Ring PETER HENNESSEY at KPG or on 01-789 8714 (evenings and weekends)
- BUSINESS ANALYST ANALYST** WEST OF LONDON
Along established computer service bureau - part of a multi-national British group - is redeveloping its information systems. You will work closely with the information centre manager to ensure that user groups are aware of all database development and that the centre works efficiently. Knowledge of APL is essential. Ref. 8430/MJ
- COBOL PROGRAMMERS** EAST LONDON
A subsidiary of a major banking group this company is currently looking to recruit additional, experienced, customer-orientated staff. You will work on the implementation of Turnkey systems built around T100 mini-computers, and be responsible for their subsequent implementation on client site. Previous T1 experience is preferred whilst excellent COBOL is a pre-requisite. Ref. 8430/MJ
- SYSTEMS ANALYST** CITY
Previous experience in the design, development and implementation of home-loans or mortgage systems, together with the ability to work closely with senior management on client sites, should enable you to join this major company. The environment is one which combines mainframes and minis in the development stages and ensures maximum exposure to clients, subsequently. Ref. 8431/MJ
- PROGRAMMING TEAM LEADER** MIDDLESEX
A household name company is currently looking to recruit a small applications team. You will work on the development of marketing and distribution systems for the internal local sites. This will involve extensive use of on-line database systems and could mean some overseas travel. This is a new departure for the group and candidates must, therefore, be capable of contributing to a team effort. Ref. 8419/MJ
- Ring DAVID MASON JOHNS at KPG or 01-881 0905 (evenings or weekends).
- SENIOR SYSTEMS ANALYST** HANTS
Senior Applications Prog. Ref. 8380/MP
- TECHNICAL SUPPORT** HANTS
A progressive software house require a Technical Support person conversant in IBM hardware. Good communications and negotiation skills are imperative, so too the ability to assess user requirements and translate into functional specifications accurately and quickly. Only candidates who relish a challenge in this type of environment should apply. Ref. 8432/PH
- TRAINEE PROGRAMMERS/ANALYSTS** HANTS
Our client, the household name in international computing now require top calibre people who feel they are not realising their full potential in their present position. Minimum requirements are good computing skills and degree or equivalent plus 12 months work experience. This is a golden opportunity - but only if you sincerely believe you have the potential and ability to make a considerable contribution in the computing field. Ref. 8388/MP
- Ring HAYDN PERRY at KPG or 01-747 0909 (evening and weekends).

KPG
01-948 5922

KPG Computer Support Services Limited
Cobden House, Park Lane,
Richmond, Surrey, TW9 2RA



CONTRACT CONSULTANT

£10,000 Basic + High Incentive Commission
Structure Basic with Private Health Insurance

As part of our expansion plans for 1984, we require an experienced and highly motivated person for this established recruitment agency.

Ideally you will be aged between 25 and 30, and have a minimum of three years' experience as a consultant in the contract operations field.

This is a realistic opportunity for a high achiever with a first-rate negotiating capability to earn £25,000 pa and more.

Only applicants with a successful record of achievement to date should apply.

Write with full details to Box No. 1289
Computer Weekly, Quadrant House
The Quadrant, Sutton, Surrey
(All applications will be treated in the strictest confidence)

RPG Programmer

Basingstoke

Wiggins Teape, part of the BAT Group, is a worldwide manufacturer and distributor of line and specialty papers.

We are installing a major production inventory and costing system on an IBM System 36 linking to a central IBM 3081 mainframe. We are looking for an experienced RPG Programmer who has been involved with implementing IBM MAPICS and/or R.T.S. PROPS Packages on the System 34, 36 or 38.

This post, located at our new award winning Head Office in Basingstoke, carries big-company benefits, including progressive salary scale, flexible working hours, subsidised restaurant, non-contributory pension scheme, and help with relocation where appropriate.

For more details please contact the Personnel Services Department at Wiggins Teape.

Wiggins Teape (UK) PLC, PO Box 88, Gateway House, Basingstoke, Hants RG21 2EE. Tel: Basingstoke (0266) 20262 Ext. 3101.

WIGGINS TEAPE

IMMEDIATE SHORT TERM CONTRACTS

IBM PROGRAMMERS WITH MINIMUM 3 YEARS' EXPERIENCE

TELEPHONE, URGENTLY BEN LEVENE

COMPUTALINK LIMITED ON:

LUTON (0582) 28784/454235 (office hours)

WATFORD (0923) 29956 (any other time)

ICL Systems Analysts

We have an immediate need for a number of ICL Systems Analysts to work on a major six months contract in:

1. The Thames Valley area
2. The North East

You'll need to be an experienced Systems Analyst - at least 3 years, including proven business systems experience - to produce functional and systems specifications.

Ring Mr. Graham Fry now, on 021-705 1857 (24 hrs) to discuss these contracts.

LOGICARE (SERVICES) LTD.

AND DATA MANAGEMENT CONSULTANCY
108 SHARPS CROSS ROAD, SOUTHALL, MIDDLESEX, Ux. 021-705 1857 (24 hrs)
Department of Employment Licence No M 435

Supporting and running one of the very first ICL super dual 2988 installations

ICL 2988

is a technical challenge indeed, but when the end application and support its many services to the community, it takes on a new dimension.

Camden's installation is in fact one of ICL's prime reference sites, an example of how computers will increasingly be used in the future. This year we're extending our operations with

the installation of a brand new super dual 16Mb 2988 to replace an ICL 8Mb 2966 and enhance the existing ICL 2956 running under DME/VME, and ICL ME 29 running under TME, and over 140 DRS terminals providing RJE and interactive services throughout the Borough.

WITH PEOPLE INVOLVEMENT

OPERATIONS & TECHNICAL SUPPORT

To operate and support this expanded system we're looking for the following specialists. By the way, further jobs will be featured in our advertisement on 1st March.

PRINCIPAL PRODUCTION SUPPORT OFFICER

£11,730 - £13,929 (Ref: C1/WA)

To join a team providing first level support and problem solving, including the efficient introduction of new applications. Must have at least 3 years' experience in a 2900 environment and a knowledge of or ability to write SCL.

SENIOR NETWORK CONTROLLER

£11,730 - £13,929 (Ref: C2/WA)

To play a leading role in the control, maintenance and development of a large Data Network, including liaison with British Telecom and external suppliers. Must have at least 3 years' experience of network control, preferably in a supervisory capacity and be capable of applying strict control procedures. Knowledge of VME/NPS systems is desirable.

TEAM LEADERS-TECHNICAL SUPPORT

£12,555 - £14,916 (Ref: C3/WA)

To lead one of three teams responsible for the smooth running of the computer service and to take charge of a team with special responsibility in one of the following areas:

1. Superstructure and superstructure environments required by users, including technical control of IDMS/DDS and TPMS.
2. Ensuring VME services are designed, built, updated and run to provide maximum performance and reliability, including communications software supported services running on VME bases.
3. Support for development, co-ordination and maintenance of other operations systems including TME, DME, DDE and DRX.

Applicants should have several years' experience in a 2900 environment, at least two of which should have been in a supervisory capacity.

SHIFT SUPERVISOR

£11,136 - £12,243 (Ref: C4/WA)

(plus 14% shift allowance on basic salary)

To supervise and co-ordinate a shift of operating staff in order to provide an effective service to users, using ICL computers running under VME, DME and TME, supporting a large communications network.

Applicants should have a good standard of education and at least five years' VME operating experience is important, as is the ability to work with initiative under minimum supervision. Knowledge of communications networks and distributed systems would be an advantage.

OPERATING TEAM LEADER

£10,251 - £10,851 (Ref: C5/WA)

(plus 14% shift allowance on basic salary)

For the operation of ICL 2988, 2956 and ME 29 computers, leading a team of operating staff in either on-line or off-line duties covering shifts

08.00-16.00 - 15.00-23.00

Applicants should have a minimum of 3 years' experience in the operation of ICL 2900 computers under VME. Experience in the use of other operating systems i.e. DME/TME would be an advantage.

COMPUTER OPERATIONS ASSISTANTS

£6,150 - £9,903 (Ref: C6/WA)

(plus 14% shift allowance on basic salary)

To operate a wide variety of ICL equipment and to control input/output data on a two-shift basis, 08.00-16.00 - 15.00-23.00, Monday to Friday. Must have at least 6 months' experience in a 2900 environment operating under VME.

If you're flexible in your attitudes and willing to get involved, we can promise you extremely rewarding career prospects and the chance to enhance your personal and professional skills through challenging and demanding projects, plus a comprehensive training programme.

We're centrally placed, close to Kings Cross and Euston Stations, with a pleasant working environment. In addition to salaries in the ranges indicated, which include London Weighting, our benefits include generous holidays, pension scheme, interest-free season ticket loans, subsidised restaurant and assistance with relocation expenses where appropriate.

For immediate action and a detailed information package, write quoting the appropriate reference number to: Departmental Staffing Officer, Room 207, Town Hall, Euston Road, London NW1 2RV; or telephone our 24-hour Ansafone on 01-837 9988, quoting the appropriate reference number. Closing date for completed applications: 19th March 1984.

Camden is an equal opportunity employer. Applicants are considered on the basis of their suitability for the post regardless of sex, racial origin, marital status, disablement or age. All posts are open for job-sharing.

Camden is an equal opportunity employer. Applicants are considered on the basis of their suitability for the post regardless of sex, racial origin, marital status, disablement or age. All posts are open for job-sharing.

CAMDEN
equal opportunity employer

Software Systems Design Engineers

c.£10-15,000

Hardware Past... ... Software Future

But, for the present, bridging that gap depends on how you plan your next career move - and that's where we come in. A highly successful Company in the area of advanced digital communication systems, we are looking for additional software engineers/team leaders to provide direct input at every stage of the design and development process, on a wide range of projects.

Your involvement will stretch from initial conception to final product release, which means an ability to grasp microprocessor-based hardware concepts is as important as your software skills. Speaking of which, you'll have real-time and systems software design experience - Assembler and high level languages applied to communication systems preferably. Of course the more senior positions call

for greater in-depth experience and man-management ability.

Naturally, the rewards are outstanding, the environment forward thinking and the prospects for career progression exceptional.

To find out more, contact Gavin Rendall on 01-578 0081 or alternatively send a brief C.V. to Dowty Electronics Ltd, Bridport Road, Greenford, Middlesex.

DOWTY
DOWTY ELECTRONICS LIMITED
Communications Division

FOR CLARIFIED
ADVERTISING USE
DIRECT LINES
RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVERTISING
(01) 661 8080

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

PUBLIC SECTOR APPOINTMENTS

Shift Leader

£10,870-£11,554 p.a. (Including Shift Allowance)
(2 Shifts, 7.30 a.m.-11 p.m.)
IBM 4341 (8MB) - VM - DOS/SE - POWER

We are looking for a person with a minimum of three years' experience as a shift leader on an IBM Mainframe. Initially we require someone with an in-depth knowledge of VM and DOS/SE/POWER, together with a good working knowledge of CICS and TP networking methods. Applicants should possess a mature and flexible personality plus the ability to manage and train operating staff in an extremely dynamic workplace. The Mainframe 4341 processes a large volume of batch work together with an increasing number of on-line systems. It also supports a growing number of distributed users, both local and remote. Each shift is also responsible for the running of a Wang VS100 with DP and integrated information system. If you feel that you have the qualities/qualifications to undertake this challenging job, then please contact David Clark on 01-883 5611 ext 2183, Harrow, PO Box 21, Civic Centre, Harrow, Middlesex HA1 2JL. Telephone: 01-883 5611 ext 2183.

Harrow

Systems Analyst

An experienced analyst is required for this additional post in our expanding computer section. More resources are being made available to user departments and the successful applicant would initially be involved in housing and DLO areas.

The City Council operates an ICL M220/54 with over 40 terminals in all departments and a major move into MICRO/MAIN computing is envisaged. The salary will be within the scale SD1/2 (£9,080-£10,638). Generous relocation expenses are payable in appropriate cases.

Application forms are available from the City Treasurer, The Guildhall, Cambridge CB2 3DQ. Telephone 0223 358977, ext. 301 and must be returned by 16th March 1984.

City of Cambridge

An equal opportunity employer

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CLYP

Micro Computer Training Programme

The CLYP is completing a £500,000 development programme which includes the first purpose-built micro computer training facility in the UK, plus other specialist educational facilities. The training programme will provide school leavers with job opportunities and high quality training in new technology. It is housed at Long Acre, Colindale, W.C2 and includes major shop front trading companies. The CLYP is also developing a link course programme for ILEA schools and an extensive evening programme, both including computer studies. We are seeking 3 staff as part of the training team.

Manager
£11,000-£13,500 to head the team, develop the training programme and other related initiatives. Experience in the technology and preferably educational experience required.

Business Applications Supervisor
£10,071 - to teach the business applications courses including general office practice, business software etc.

Software Supervisor
£10,071 - to teach micro operating systems, programming etc. Salaries are based on the Barnham scale and are currently subject to review.

For further details and conditions of service, please either telephone or write to the Director, Central London Youth Project Ltd., 25 Shilton Street, London WC2, 01-240 8377. The closing date for applications is 2nd March 1984.

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WEST LAMBETH HEALTH AUTHORITY SHARPEY SCHAFER CENTRE

2 Analyst/Programmers

(Scale 9/14) £9,409-£12,476 Inc.

1 Systems Programmer

(Scale 1/4) £6,712-£10,067 Inc.

The centre specialises in health care management and clinical information systems. It currently provides a service via an extensive terminal network using a Honeywell Sigma 5 twin GEC 4190 and various micro-computers (eg. 1 attached).

The two Analyst/Programmer posts are senior ones within the Department and the successful applicants will be expected to take responsibility for various systems. It is likely that one person appointed will be responsible for telecommunications within the District, including the Local Area Network, and previous experience in these areas would be an advantage.

For all three posts, an ADP allowance of up to £554 may be payable.

For application form and job description, contact the Personnel Department, St Thomas' Hospital, Lambeth Palace Road, London SE1 7EH. Telephone: 01-928 9292, ext. 2422.

For informal discussions, please telephone Dr A. V. Stokes, Director of Computing, 01-928 9292, ext. 2713.

Closing date for completed application forms - 29th February, 1984.

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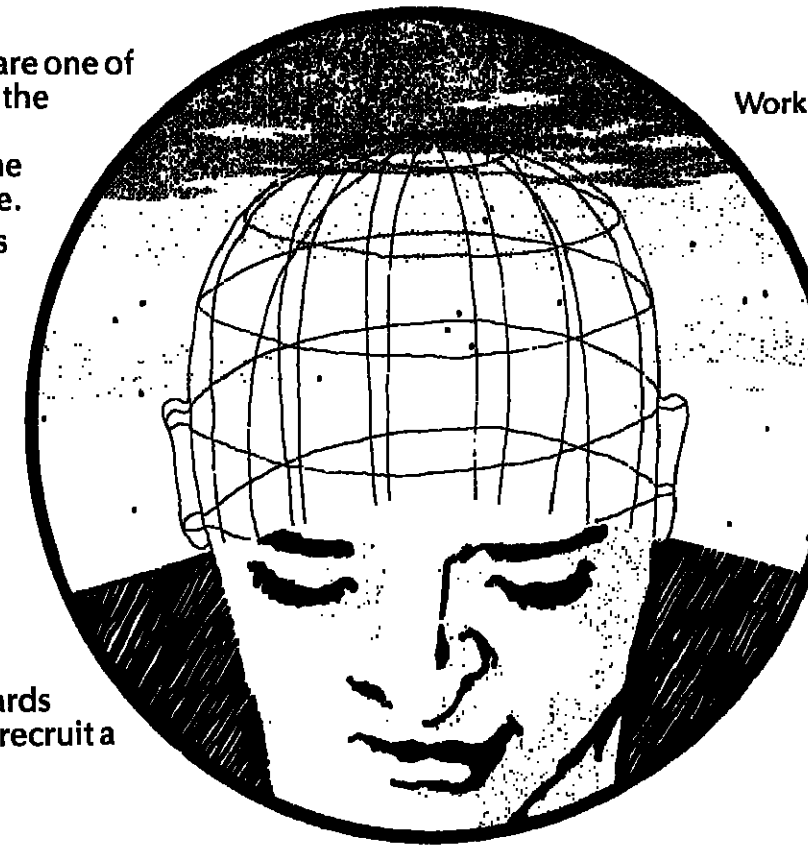
THE REALISATION OF EXCELLENCE

Management & Executive Selection are one of the foremost companies involved in the recruitment of highly skilled Staff Managers and Senior Manager for the high technology industries in Europe.

Our client base reads like the 'Who's Who' of the computer world, ranging from small fast growing 'state-of-the-art' software companies through to the large multi-nationals, system manufacturers, peripheral manufacturers and End Users alike.

Expansion of our central London facilities and the introduction of new technologies will enable us in 1984 to increase still further our marketing coverage.

In order to maintain our high standards of professionalism we now need to recruit a number of key professionals.



SENIOR CONSULTANT
Working with and extending our client base, you will be responsible for the day to day management of projects undertaken on behalf of our clients.

You will require the aptitude to plan in a strategic manner and implement recruitment projects, co-ordinating the resources of our extensive database, advertising and executive search facilities.

CONSULTANT
Working in a team environment you will be responsible for day to day client contact, interviewing and co-ordinating the assessment facilities.

ASSOCIATE CONSULTANTS
We are looking for personnel with experience in sales, sales support, engineering, analysis or programming who are looking for a new career direction. You will receive training in selection methods and gain practical experience within the recruitment industry.

The company operates on a quality circle style of management. Salaries for the above positions range from £8K - £17K plus participation in a quarterly bonus scheme plus fringe benefits.

For further information and initial interview contact Tony McGrath on 01-637 9611.

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

MVS System Specialists

We offer more than compatibility

The pioneering work in semi-conductors and packaging technology which brought Amdahl to its leading position in the large-scale, general purpose, computer market, has now been extended to new areas such as storage and communications, establishing an impressive, high technology product range.

Essential to the Company's remarkable penetration of the market has been an excellent level of product support, resulting in the outstanding level of customer satisfaction confirmed by independent surveys.

Now leading the industry in its approach to training and education, the Company will develop and improve upon the talents of a computer professional with a sound MVS background. Suitable applicants will be in either a Systems Engineer/Support role with a manufacturer/software house, or be a Systems Programmer with an end user, who is keen to learn more. In both cases an excellent salary commensurate with experience and potential will be paid with benefits including company car, discount share option, medical insurance, non-contributory pension, etc.

In the first instance, please contact our Advising Consultant, JIM SMITHAM, on 061-833 0427 (24 Hour Answering Service) or 061-439 2679 (between 7 pm and 9.30 pm Evenings and Weekends). Alternatively, submit a detailed C.V. to the following address: S.C.R. Ltd., International House, 84 Deansgate, Manchester M3 3EE.

Specialist Computer Recruitment Ltd

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THE UNIVERSITY OF LEEDS OFFICE OF THE REGISTRAR

COMPUTING ASSISTANT (PROGRAMMER)

An experienced COBOL Programmer is required to join a small team of analysts and programmers working in the Administrative and Finance Unit. The Unit currently maintains an increasing range of batch and on-line systems on an ICL 2902/50 and an ICL 2902/50, and new on-line work is being actively developed.

For this post experience in an environment including microcomputers on large on-line machines would be equally valuable.

The starting salary is at an appropriate point on the IB Grade of the scale for Administrative staff (£2310-£2978) according to age, qualifications and experience.

Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference no. 11/33942. Closing date for applications 16 March 1984.

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Advance in an IBM environment

To maintain its dominant position in its own area of retail distribution, this Organisation is rapidly moving towards a leading position amongst high technology users. The present development programme provides exciting opportunities for ambitious computer professionals to work with the latest equipment in a dynamic environment where the computing function is recognised as integral to the future success of the Company.

Senior Analyst/Programmers Up to £10,500 p.a.

These positions provide opportunities for career minded individuals to play key roles in a fast moving environment. Applicants will have at least three years experience in the industry, a COBOL background combined with knowledge of IBM mainframes, probably MVS and ideally, both design and supervisory experience. The job satisfaction and career progression offered are exceptional, as new developments arise continually in this department.

North West Opportunities

Work for a major public concern with an enviable profit record situated in the North West, and enjoy a secure and rewarding future.

Our Client is centrally situated, housed in modern purpose-built premises, enjoying easy access by excellent roadlinks and public transport facilities (free parking available).

For exceptional candidates, higher salaries than those indicated will be paid in addition to benefits which include generous staff discounts and assistance with relocation in appropriate cases.

To arrange a first interview, contact
JIM SMITHAM on **061-833 0427**
(24 Hour Answering Service) or
061-439 2679 (Evenings and Weekends
between 7 pm and 9.30 pm)

Systems Analyst Up to £11,000 p.a.

This position provides an excellent opportunity for an Analyst/Programmer who wishes to develop their talents for analysis without losing their technical skills. The successful applicant will have a solid Analyst/Programmer background and must be able to demonstrate a proven record of systems design and implementation. He/she will welcome new problems and aim to solve them quickly. Equally important, the successful applicant must possess the personal attributes necessary to liaise with staff at all levels.

Programmers Up to £8,000 p.a.

This position provides an excellent opportunity for a Junior Programmer who wishes to take responsibility for the development of new systems in a fast moving IBM environment.

SYSTEMS DEVELOPMENT

c. £15,000 p.a. plus excellent benefits package.

The Challenge To take day to day responsibility for the ongoing systems development of a well known Lloyd's underwriting agency. Duties will include ensuring the smooth running of the computer and maintenance of existing systems, extensive end user contact, systems design work and liaison with the software house employed by the company. There is a continuing commitment to development as well as the usual day to day control activity.

The Company Our client is a leading Lloyd's underwriting agency managing several syndicates. They have an impressive track record and have consistently increased their turnover and profits throughout their history. This appointment is due to continuing expansion of their computing activities.

The Requirement Candidates will probably be in the age range 25-40 and should be able to demonstrate a background of successful systems implementation. The ability to communicate effectively with end users is essential as is the strength of character to control systems development projects. Experience of underwriting activities, and technical d.p. experience would be desirable, although the client would consider candidates with alternative backgrounds.

The Rewards The successful candidate will be given every encouragement to develop his career which will not necessarily be confined to purely d.p. activities. He or she will receive a basic salary in the region of £15,000 p.a. and benefits including LV's, Pension and Life Assurance, Medical Expenses Insurance, Permanent Health Insurance, Season ticket loans, and a discretionary annual bonus.

Location Our client is based in the heart of the City with excellent travel facilities close to hand.

Interested? Then please contact Chris Morrow of Total Selection Ltd who have been retained to advise on this appointment. He will be pleased to answer any further questions.

TOTAL SELECTION LIMITED
388 CITY ROAD LONDON EC1V 2QA
01-837 0451

(7897)

SENIOR BURROUGHS OPPORTUNITIES

Our client, Universal (CMS) Ltd., is a small but well-established Software House with teams specialising in the clothing and textile industry and wine and spirits industry. Due to increased demand for their services they now require additional senior DP professionals to join them at both their Windsor and Leicester based offices.

SENIOR PROGRAMMERS to £13,000 + CAR

The minimum requirement is three years' solid CMS COBOL with the ability to make a positive contribution to the development of new systems and the expansion of existing products. Candidates must be self-motivated, professional in both appearance and attitude and be capable of liaising directly with Clients at all levels, often inexperienced computer users.

SYSTEMS ANALYSTS to £15,000 + CAR

Candidates should have a sound DP background with experience of designing commercial real time systems on mini or micro computers. They must also have seen at least one project through from feasibility study to full systems implementation. As there will be a good deal of customer contact and support, applicants must be professional in both appearance and attitude.

The Company has now reached a crucial stage with its planned expansion and is dedicated to recruit the right individuals to join their young and dynamic teams. If you can meet the above requirements and would enjoy working in a challenging and rewarding environment, contact Mike Harmer at Apex 01-404 4821 or Terry Forsey at Universal (CMS) Ltd., Windsor (07535) 54587 for further details.

Apex Computer Recruitment Ltd.

404 4821

Apex

Apex Computer Recruitment Ltd.
59 Grays Inn Road, London WC1X 8TL Tel: 01-404 4821.

Computer Services Manager

DEC/VAX environment Wembley

As one of the world's leading designers of advanced IC technology, the processing power necessary to support our sophisticated CAD requirement is truly critical.

You'll be taking the reins of a system that currently consists of 2 x VAX 11/780s each with 4Mb of internal storage backed by 2 x PDP 11/34 based graphic systems linked into DECNET and on PSS Network with 32 in-house terminals. If that doesn't quite sound enough, then you'll be pleased to hear that your first major task will be to acquire and commission 2 more VAX systems and an improved LAN set-up effectively doubling the installation's capacity.

Even with this enhanced capability, the rapid growth in user demand will require careful shepherding of system availability.

You'll be taking on commercial as well as technical responsibility for the development and maintenance of the systems resource and working closely with design heads. You'll drive the evolution of the system thereby putting to good use your interest in changes of technology. Your ability to get things done will be paramount.

One extra point is that in addition to the highly competitive salary this is a 9-5 role, which if you currently work on a shift rota basis could give you something to sleep on.

So call Chris McDonnell on (0522) 693389 during normal working hours or any evening between 7.00pm and 9.00pm on (0522) 752244. Alternatively send brief career details to him at: Marconi Electronic Devices Ltd., Dodington Road, Lincoln LN6 3LF.

Marconi
Electronic Devices

TODAY'S COMMITMENT-TOMORROW'S TECHNOLOGY
HYBRIDS- INTEGRATED CIRCUITS-MICROWAVE-POWER DEVICES

COMPUTER DEVELOPMENT STAFF ARE REQUIRED BY TRAVICOM

TO SUPPORT AN EXPANDING DEVELOPMENT PROGRAMME

Travicom is a Thames Valley based company involved in the provision of computerised facilities for the travel industry using the most up-to-date-micro computer and communications technology.

OUR ACHIEVEMENTS TO DATE INCLUDE

- Linking 36 airlines to nearly 1,000 travel agency offices with lease line and dial-up procedures, including the new Traveller Viewdata system.
- An automated airline ticket printer service.
- Interfacing airline systems with office-based computer systems.

AN EXPANDED PROGRAMME FOR 1984/85 INCLUDES

- Connection to a new range of supplier host systems including car-hire and hotels.
- Implementation of a private X25 network to cover the United Kingdom.
- Enhancements to existing services.
- Further developments in ticketing and Viewdata services.
- Product marketing overseas.

Computer professionals are required to join the present experienced and highly motivated team based in Maidenhead. The staff likely to be selected will have a minimum of two years' experience in one or more of the following areas - Micro Computers, 'Unix', Programming in 'C' or Zilog Assembler, Communications Software, Terminal Systems or Airline Reservations.

Vacancies exist up to Team Leader/Senior Analyst level. Salary range is between £11,000 and £16,000 according to experience. Company benefits include free private medical insurance, life assurance, pension scheme, special holiday discounts, luncheon vouchers and 22 days' annual leave.

Please apply enclosing detailed cv to:

Mrs J. L. Drake, Personnel Officer
TRAVICOM

13 Hermitage Parade, High Street, Ascot SL5 7HE
or telephone Ascot (0990) 20175 for further information

PERMANENT SYSTEMS & PROGRAMMING

CICS SPECIALISTS BUCKS.

£14,000 + CAR
A highly challenging position awaits for the right individual within this small environment of specialist consultants. If you have extensive experience of CICS gained over at least four years call us now.
C10209

SENIOR SYSTEMS PROGRAMMERS ALL AREAS

£14,000-£20,000
Extensive MVS systems experience is required by a number of organisations throughout the UK. Competent Systems Programmers with experience of SNA and/or other telecommunications systems desirable.
A10047

IBM PERSONNEL LONDON

£10,000-£16,000
Programmers to Programming Managers. COBOL CICS DL/1 expertise is required for a number of organisations. In addition to technical ability senior posts will require proven managerial experience.
H8081

PROGRAMMERS & ANALYST/PROGRAMMERS LONDON

£10,000-£12,000
Excellent ASSEMBLER programmers with on-line real-time systems experience is required by a number of installations. IBM background essential additionally a good knowledge of COBOL is desirable.
M10035

RPG II/III ANALYST/PROGRAMMERS MIDDLESEX

£14,000
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Our requirements are constantly changing - if your skills are not listed above you may still have the experience we require. Telephone us as we are always pleased to offer advice and to discuss how we can help you.

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(7814)

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Our success as a software house is reflected in the range and quality of positions we offer for contract or permanent staff. Our future in the international systems and software world is impressive and your career enhancement with us will be impressive too, to project management and beyond. Here are some of the positions on offer with some of our clients - major commercial organisations.

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(not less than £8,000) - aged 25-32 who can offer at least two of the following:

- * A minimum of 2 years' COBOL experience.
- * Experience of On-Line Transaction Programming.
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- * Knowledge of TDS and/or IDS II.
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To the successful applicants we offer five weeks' holiday, pension scheme with free life assurance and participation in our staff bonus scheme.

Interested candidates should write with full personal and career details to:
Chris Watford, Personnel Manager, AMP Legg (A Division of AMP International Limited), Newbury Road, Andover, Hampshire SP10 4BW, or telephone (0264) 62188 (Ext. 278) for an application form.

AMP Legg

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To ensure successful completion of these projects, we have been retained to assist in the recruitment of a Senior Analyst Programmer able to define and implement the new systems with initiative, maturity, personal authority and stamina. Exposure to System 38 RPGIII is essential.

For further details of this genuinely challenging position offering a high degree of responsibility and involvement together with opportunities for occasional foreign travel please contact MELVYN DEARLOVE at Computer Two Thousand.

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(7874)

Tel: 01-636 7584 (24-hrs)

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The public authority for Civil Information, a government department, is seeking to recruit qualified and experienced staff for its newly set-up Data Processing Department in Kuwait.

THE JOBS

1. **OPERATIONS MANAGER.** With at least 12 years' experience where at least four years were spent in setting up and managing a Data centre under the environment of IBM/30XX with knowledge of MVS operational requirements.
2. **SYSTEMS PROGRAMMERS (2).** Minimum three years in MVS support and related utilities.
3. **SYSTEMS PROGRAMMER.** Minimum three years' experience in TP support, mainly CICS and CMS and working knowledge on MVS operating systems.
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5. **DOCUMENTATION SPECIALIST/TECHNICAL WRITER.** Minimum 10 years' experience in the following areas:

- Systems Analysis
- System Implementation
- Users Training
- Compilation of Documentation Manuals
- Quality control of systems development standards and procedure

THE CONDITIONS

In addition to tax-free salaries, which are negotiable, the successful candidates will be provided with free furnished accommodation, return air ticket for employee, wife and two children and 30 days' annual leave. The state of Kuwait provides free medical care to all residents in the country.

If you are interested, then write with full career details to:

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In the first instance, please contact:
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This could well be your first job move - in the RIGHT DIRECTION! INTERESTED? Ring or write to: Peter Barnes, Medical Insurance Agency Ltd., B.M.A. House, Tavistock Square, London WC1H 9JD. Day 01-388 1301. Evening (7-9 pm) 0727 57641.

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Box number replies should be addressed to:

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Buxton, Surrey SK24 8AS

Chr. Michelsen Institute is an independent multi-disciplinary research institute which serves industry and society in Norway and abroad. The work of the Institute is financed by means of government grants and by R and D Contracts.

CMI's dept of science and technology has a staff of 105, most of whom are graduate scientists or engineers.

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Applications are invited from highly qualified and suitably experienced persons for a position in computer graphics and animation. Applications with a Ph.D or M.Sc in computer science will be preferred.

Research activities in the dept of science and technology are concentrated in the following areas:

- Powder technology, dust and gas explosions
- Instrumentation and measurement technology
- Remote sensing and image processing
- Signal processing, including seismic interpretation
- Mechanical design and precision engineering
- Electronic design

Many of our projects in these fields utilise computers for simulation, data reduction, and design purposes. In order to enhance our ability to interpret and understand computer output, we plan to expand our use of computer graphics and animation techniques. Further details of this challenging appointment can be obtained from Hækon Høiland at CMI. Deadline for applications is February 20, 1984.

CMI offers competitive salaries and an attractive work-place on the outskirts of Bergen, on the west coast of Norway. The institute will assist in obtaining suitable accommodation. Applications, accompanied by curriculum vitae, should be sent to the Director, Dept of Science and Technology, Chr. Michelsen Institute, Fantoftvegen 38, Fantoft, Bergen, Norway. Tel: + 47 5 284410. Telex: 40006 CMI N

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| (2) Designers, IBM, IMS/DB/DC | W. Germany | 6m+ |
| (1) Sen. Programmer, IBM, IMS, PL/I | Switzerland | 6m+ |
| (6) Sen. Programmers, IBM, IMS, PL/I | W. Germany | 6m+ |
| (1) Project Leader, IBM, IMS, Insurance | W. Germany | 1yr |
| (All assignments above require German speakers) | | |
| (6) Prog/Analysts, IBM, MVS, PL/I | UK | 3-6m |
| (3) Prog/Analysts, 8086, CHILL, PASCAL | UK | 3-6m |
| (3) Prog/Analysts, IBM, IMS, PL/I, COBOL | UK | 6m |
| (3) Tech Programmers, VAX, FORTRAN, C, GRAPHICS | UK | |
| (1) Programmer, UNIVAC, DMS1100, COBOL | Scotland | 3m+ |
| (1) Programmer, IBM, COBOL, CICS | UK | 3m+ |
| | UK | 6m |

For more information on UK and European contracts please telephone Clive Chetlin on 01-852 8092 or write to him at:
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VTAM/CP/ACF/INCCP/INCCF/INTO

A knowledge of other mainframes and their associated software is advantageous. You will already have achieved success in network design and be conversant with capacity planning techniques and front-end processors. To succeed in this challenging role, you should be a 'results-oriented' achiever, an outstanding technician and have a personality which will allow you to relate effectively to management and other specialists throughout the region and other locations worldwide. Future plans are exciting and will require you to spearhead several new projects. The position will involve a high degree of travel, principally in Europe. Career prospects are excellent. The superb range of benefits on offer will fully reflect the importance of this position.

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To find out more about this outstanding opportunity call Ray Parker in confidence on 01-491 4653 (01-880 7888 evenings and weekends) or forward your cv.



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(7807)

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- Technically challenging projects (all involving Real-time)
- A high level of job interest
- A variety of hardware and applications
- A dynamic environment for personal growth
- Extensive training in hardware and software techniques

Our client has opportunities for personnel at all levels of expertise and experience. In all cases a COBOL programming background is essential although for most vacancies the mainframe hardware you have used is not important. You should, however, have experience of work on projects of a significant size and duration.
Positions include:

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£8.5K to £12K

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Experienced in the design of commercial systems, you will take a functional specification through all phases of file, suite and program design up to the spec. writing phase. You will have experience of commercial/financial applications. For some of these vacancies we would like to hear from persons with HONEYWELL DPS7 or DPS8.

Senior Analysts/Project Leaders

£14K to £18K

You will be experienced in formal project control techniques and have a solid commercial systems background. This may include Building Societies, Banking or Commodities but experience of one of these application areas is not essential. An ability to work both at an in-depth project level and at a senior level with client personnel is important however.

ACT NOW for a rewarding career

Such is the importance of this campaign that we have prepared a background factsheet in conjunction with our client. To obtain this, simply clip the coupon below and send it to our London office address. Alternatively, telephone our managing consultant ILEN CRAY on 01-630 1433 (Daytime) or Evenings and weekends on 01-794 3406 or send your cv. to him direct at the address below.

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We are seeking to appoint a Senior Systems Programmer, with large scale IBM configuration experience, and in-depth knowledge CICS/VTAM/NCP within an SNA environment. 8100 experience would be an added bonus.

As a well resourced organisation, with a considerable commitment to computer technology, we can offer excellent long-term career opportunities, thorough ongoing training programmes and an increasingly challenging and stimulating environment.

In the first instance please contact **Nick Reid** on 01-935 0671 or 01-644 1973 evenings or weekends for a private and confidential discussion/interview. Alternatively submit a brief Curriculum Vitae to our London office, reference **NR77**.

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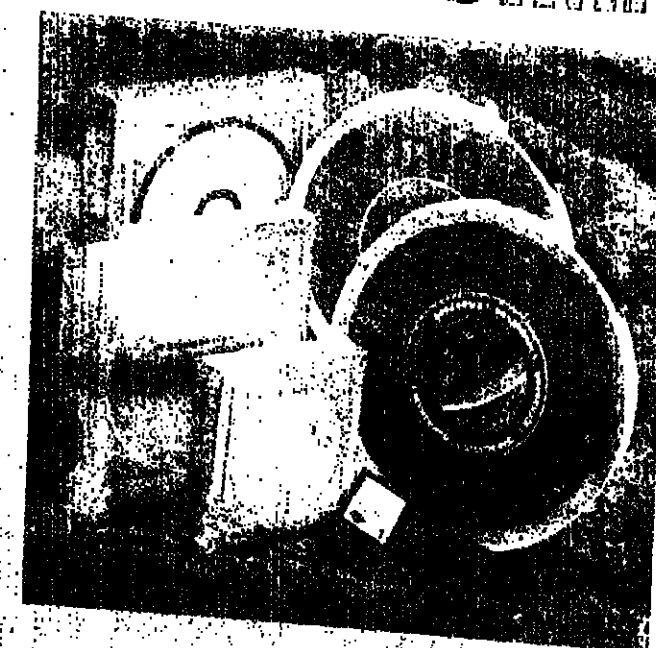
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and the
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that not only provide a 'ground-floor' opportunity within a fast growing and progressive organisation, but which also gives the individual salesperson freedom of action, scope for creative selling and real involvement in shaping the destiny of the company.

Our client is a well established name in both minicomputer based turnkey systems and computer terminals and has secured some 25% of a specialist market. Such is the success, that all of their existing salespeople consistently achieve target. This is most likely due to the company's unusually high investment in advertising.

We are seeking three accomplished salespeople; one with significant experience of selling DEC based commercial and industrial Turnkey Systems up to a value of say £200k, and two with a good track-record of selling Computer Terminals. In the former case, a pre-sales support analyst would also be considered. In the latter case, some exposure to DEC equipment will be advantageous, but not imperative. Whereas, a proven ability to communicate at a senior level, is essential.

An attractive compensation package is negotiable, including a company car and a variety of fringe benefits.

Please contact Lindsay Howie (London), or Roger Dodd (Midlands), quoting reference HSC/024.

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(7884)

VAX Designer/Programmers

Circa £16,000 + generous banking fringe benefits

Two results-orientated Designer/Programmers are required by Credit Suisse First Boston Limited, the international investment bank, for their twin VAX-11/780 installation in the City.

Systems Development Technician

The Systems Development Department requires a highly experienced technician with substantial VAX COBOL knowledge to guide the structural design of banking application systems, and to provide general technical support to the bank's programmers. User-related experience of VMS with COBOL is mandatory and banking application knowledge would be helpful.

Information Support Designer/Programmer

The recently formed Information Support Services Department requires a broadly-based Designer/Programmer to work closely with end-users in investment management and security trading. The primary need is for someone to assist these users to get results from the computer quickly. The necessary programs may be written conventionally in COBOL, bought-in as packages, or built using fourth generation techniques such as query languages, modelling packages and application generators; the successful applicant will be expected to participate actively in the evaluation and selection of such techniques. Candidates must have a substantial record of personal success in implementing complete working systems.

Please write with full details to: Angela Callan, Credit Suisse First Boston Ltd., 22 Bishopsgate, London EC2.

CSFB

(7814)

SALES BIT

Quality of Management—83

How to survive in the jungle of high technology

FORGIVE me if I appear to be rambling on about product knowledge — but I don't apologise for it! It's a subject I feel strongly about and, as I suggested last week, the proportion of salespeople who are out in the world selling high technology products and armed with nothing more than superficial knowledge, is probably higher in the computer industry than in any other.

The reasons are fairly obvious: the introduction of new hardware and software is virtually a daily event within the industry at large. The rate of technological advancement seems to increase at an exponential rate as the unit price appears to decline in adverse proportion.

There is so much new information to be absorbed that it is difficult to keep up with it all. For example, in 1982 alone Data General introduced 27 new products into the UK. So their salespeople

In other words, they don't know what they are talking about. They know their product in three different models, 64K, 128K memory, matrix plot, fixed or floppy discs, with software for accounting, word processing, space-invaders, computer-aided design and direct access to top secret files at GHQ, and that it does not be used when there's a sale the month, but that's not enough.

The salesman must know the product inside-out, back-to-front and sideways. He must know the level of understanding where no one can ever ask a question to which he does not have an answer (not just an answer, but an answer which he does not have to prepare a rebuttal. After all, if objection is seldom anything more than a request for information, it must be constantly on the

gry for detailed information.

Some may, through strength of character, be able to pull themselves up by their own bootstraps; but many will not

were obliged to get involved in a lot of learning in order to sell their products effectively. This demanded considerable commitment on the part of both the company and the salesforce; but they had the resources to do it.

For salespeople who have just entered the computer industry, there is the problem of not only learning about new products, but all the established ones too. This is difficult, but it is a problem that can be handled with dedication and application on the part of company and salesman alike.

For many, what is said to be training really means that the new recruit spends a couple of weeks or so with established sales and technical people, collects an armful of brochures and manuals, then he's on his own.

For established people and replenishment training, it's a question of do-it-yourself. It is difficult for salespeople to ensure long-term survival in this kind of technological jungle.

Sadly, sales and product training is not a fundamental part of the organisation of many of the smaller computer suppliers. When such companies approach recruitment consultancies such as ours, they invariably ask for "ready-made" — people who have already received their training at the expense of some other company. They do so because they have no resources to provide comprehensive training themselves.

Nothing wrong with that, so long as specific product training is continually available. The problems start when the shortage of accomplished salespeople pressures them into employing those whose product or applications experience is not directly relevant, or who have not yet fully proved their ability to sell effectively within the computer industry.

Such salespeople are put into a situation which effectively perpetuates their lack of knowledge. Some may, through strength of character, be able to pull themselves up by their own bootstraps; but many will not.

For most people outside the computer industry (and for some within it), the whole business of computing is a bewildering landscape of incomprehensible technology and Orwellian possibility. So it is understandable that many who are new to computer sales hide their nakedness behind a veneer of superficial knowledge.

He will go to any lengths to get it.

He must live the product. But above all, he must know that product training is a continuing process, that no one knows everything about anything.

This is an attitude of mind that cannot be left to the natural inclinations of the individual salesperson. An essential element of product training is promoting the importance and value of the continuing learning process, and responsibility for this firmly lies upon the sales manager.

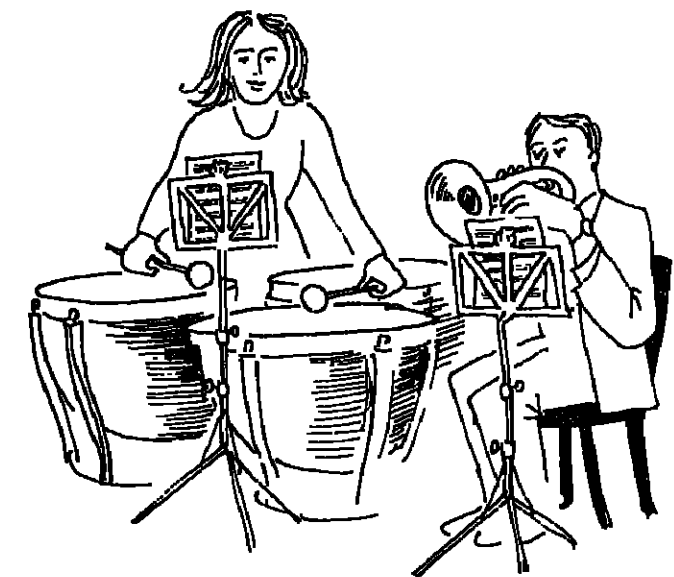
At the end of the day, a salesman's job is to identify the customer's real problems, present the best solution his company can provide related to the funds that are available, and then persuade him to buy it.

Without comprehensive product knowledge, he cannot adequately enter the negotiation process without resorting to deception — and we all know where that leads to.

Alan Williams

PUZZLE ANSWER

9	9		
4	9		5
4	9	4	1
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3	9	1	5
3	9	4	2
7	9		2
7	5	4	2
9	5	2	2



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- Systems analysis and training experience
- The personality to establish good relationships quickly

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